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Vol. XXIII, No. 5 MAY, 1934

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

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THE 83rd ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN PORTLAND, ORE., IN 1935.

The 1935 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conference of Pharmaceutical Association Secretaries, of the Pharmaceutical Law Enforcement Officials and the Plant Science Seminar will also be held in Portland.

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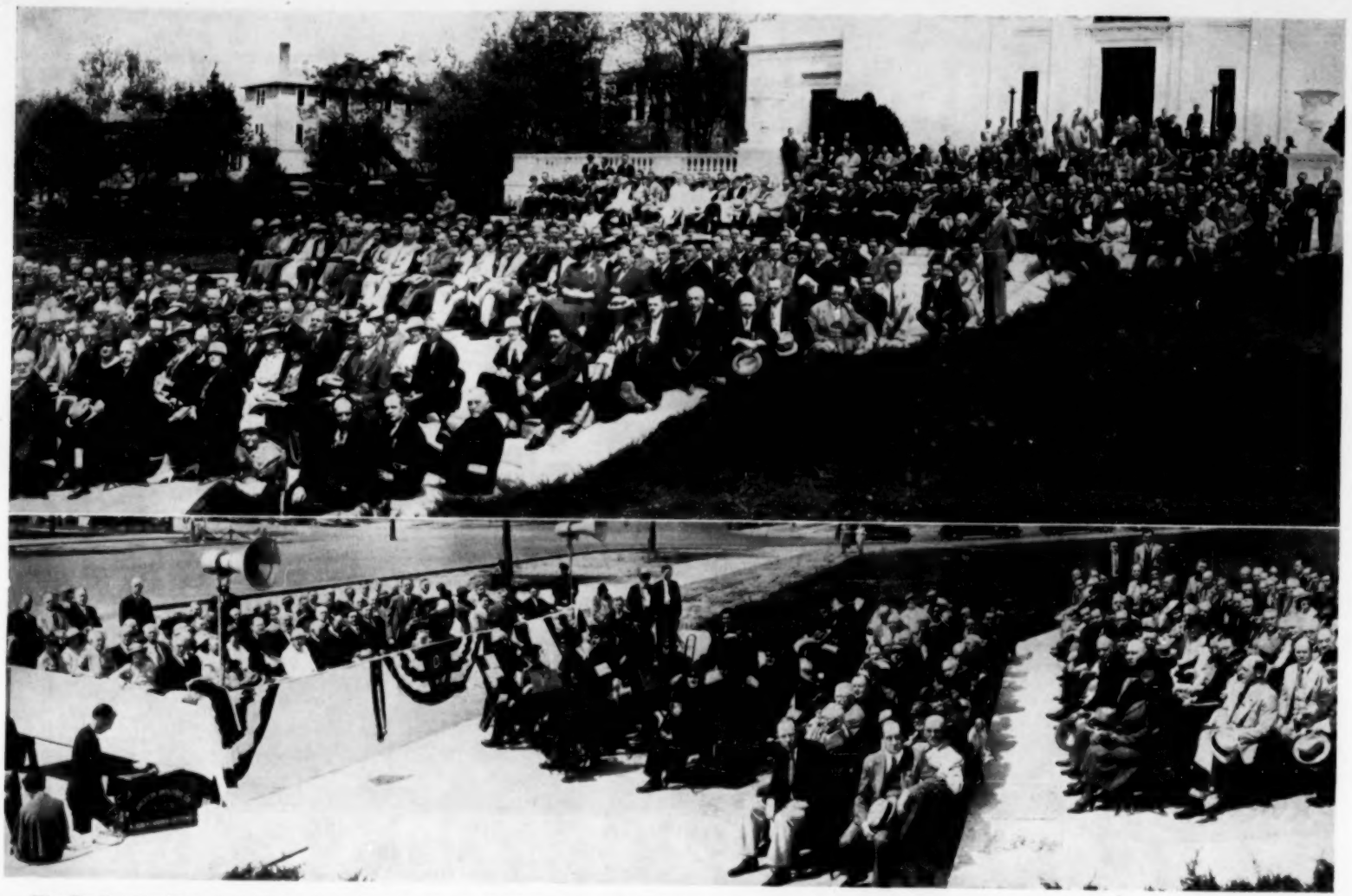
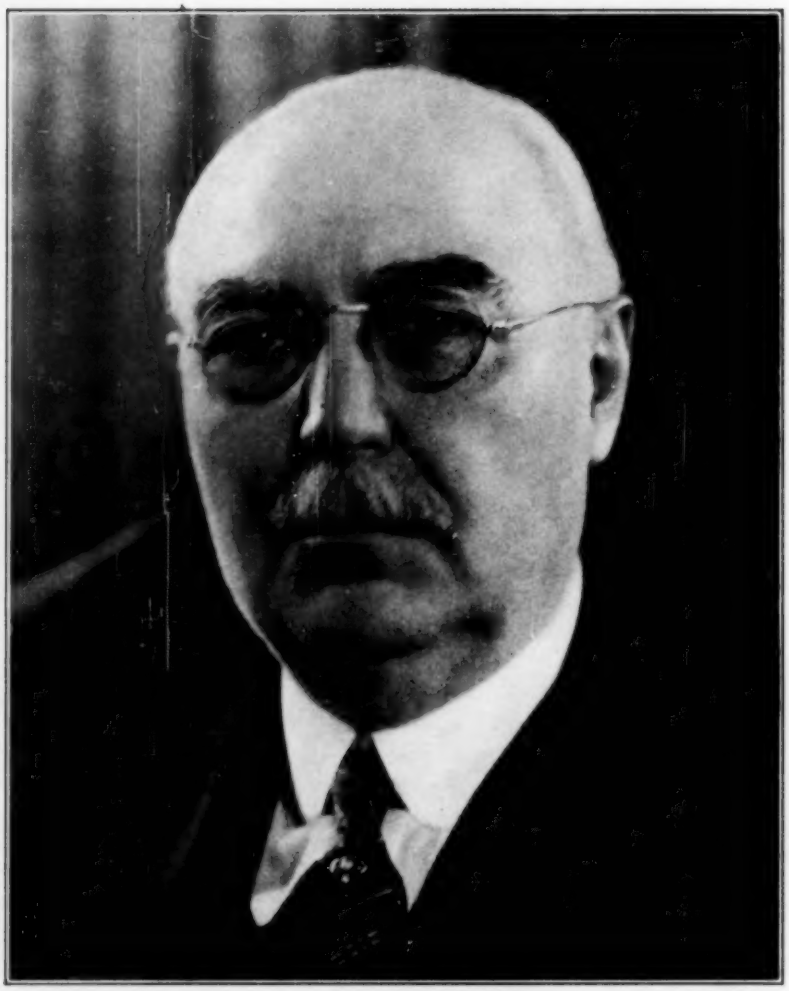
participants in the ceremony continued in upper plate.



The Dedication Exercises of the American Institute of Pharmacy. The half-tone is made in two sections—the speakers stand below on left and the participants in the ceremony continued in upper plate.



JOSIAH K. LILLY.
Honorary President A. PH. A., 1934–1935.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XXIII MAY, 1934 No. 5

THE HONORARY PRESIDENT OF THE A. PH. A., 1934–1935.

Josiah K. Lilly, elected honorary president of the AMERICAN PHARMACEUTICAL ASSOCIATION at the Washington meeting, became a member of the ASSOCIATION in 1890. He is the son of the founder of the Lilly Laboratories and was born at Greencastle, Ind., in 1861. In 1873 the family moved to Indianapolis.

After concluding the studies in the public schools of Indianapolis, Mr. Lilly enlisted as a student in Asbury College, now DePauw University, and after that he entered the employ of his father, who had established a pharmaceutical manufacturing plant. In 1880 he matriculated at the Philadelphia College of Pharmacy and graduated in 1882. Returning from college he was made superintendent of the laboratories and held this position until the death of his father in 1898, whom he succeeded as president of the company and held this office until January 1932. He is thoughtful of those who coöperate with him and is highly regarded by his co-workers in the industry. Mr. Lilly takes an active interest in civic affairs and the promotion of endeavors for the betterment of city and state.

For many years Mr. Lilly has been helpful in the advancement of the work of the Indianapolis Y. M. C. A., of which he served as president and during that time the movement was started for the construction of the present building; he is custodian of a fund of several million dollars, administered for the welfare of the community. Higher educational work in Indiana has always interested Mr. Lilly and he has made substantial gifts to Butler and DePauw Universities and Wabash College. He is a member of the Board of Trustees of Purdue University. His interest in the American Institute of Pharmacy is always in evidence.

Through his love of music, Mr. Lilly has brought to Indianapolis what is understood to be the most comprehensive collection of the poems and songs of Stephen Collins Foster. He has built a shrine on his farm near Indianapolis, known as Foster Hall, in which there is a magnificent organ and a repository of a large number of the works and mementoes of the composer.

In 1882, Mr. Lilly was married to Miss Lily M. Ridgely[1] of Lexington. They have two sons, Eli, now president of Eli Lilly & Co., and Josiah K., Jr., a vice-president.

[1] Deceased April 1934.

EDITORIAL

E. G. EBERLE, EDITOR 2215 Constitution Ave., WASHINGTON, D. C.

THE AMERICAN PHARMACEUTICAL ASSOCIATION MEETING OF 1934.

THE Washington Meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION and associated and related organizations was an outstanding success. The National Conference on Pharmaceutical Research was well attended and the members were favored by Dr. Carl Voegtlin, speaker of the evening. Both the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy registered well-represented delegations; general satisfaction of their work was expressed by the members. The Joint Session of the latter bodies was addressed by Senator Royal S. Copeland on "Food and Drug Legislation;" another speaker was President Mordecai Johnson, of Howard University.

More than five hundred guests participated in the annual banquet, the interest of which was enhanced by the presentation of the Remington Honor Medal to Sir Henry S. Wellcome. A report of this function is printed in another section of the JOURNAL and also the addresses of the several presiding officers of the organizations, assembled in convention.

The Dedication Exercises were outstanding features of the program of the meeting and are reported in succeeding pages of this issue, and continued in the General Session on Thursday afternoon. An intense and lively interest prevailed throughout the discussions which were directed by Chairman H. A. B. Dunning.

The House of Delegates, the Conferences of Pharmaceutical Association Secretaries and of the Law Enforcement Officials held profitable and representative sessions; the transactions of these bodies will be reported in a succeeding number of the JOURNAL.

All of the sections were well attended and in all of them a large number of timely papers were read and discussed; abstracts of some of these will appear in current issues of the JOURNAL, prior to their publication.

The entertainment features received favorable comment, they included dinners, dances, sight-seeing tours in and about Washington; fraternities enjoyed the opportunities afforded by the annual event; the former presidents of the ASSOCIATION dined together and discussed earlier meetings and gave thought to possibilities taking shape with the opening of the American Institute of Pharmacy. Their ladies, Mrs. H. M. Whelpley and Mrs. John G. Godding, graced the table. The veteran druggists of many cities joined in the annual get-together feast in a spirit of growing younger, even though time may disagree with them. The local committees carried out a successful program with a purpose of impressing Washington hospitality on the visitors.

The expression was general that Pharmacy had a building in which pharmacists have pride, beautiful in design and architecture and furnishings. Congratulations came from all sections of the United States, Canada and Europe, and representatives, as will be seen from the programs, were cordial in their felicitations and the ASSOCIATION was honored by a message from President Franklin D. Roosevelt.

The dedication of the American Institute of Pharmacy added lustre to the successful convention; the addresses were timely, and conveyed worth-while and thoughtful messages.

The convention of 1934 marks an epoch in pharmaceutical history and progress.

MESSAGE OF THE A. PH. A. PRESIDENT.

THE relatively short ASSOCIATION year, which came to a close on May 11, 1934, was packed with events of utmost importance to American Pharmacy. Climaxed by the dedication of the American Institute of Pharmacy on May 9th, the convention of the AMERICAN PHARMACEUTICAL ASSOCIATION and associated and related organizations, held in Washington May 7th to 11th, inclusive, gave evidence of the deep concern with which those who are engaged in the endeavor to preserve and advance the interests of professional pharmacy, are approaching the problems of the day.

No reference to the events of the busy convention and dedication week would be complete without a tribute to the high degree of excellence of the addresses given by retiring President Swain on the occasion of the dedication of the American Institute of Pharmacy and at the first general session. His recommendations embodied in the presidential address offer a groundwork for constructive effort in the year to come. The resolutions growing out of the work and activities of the Sections and Conferences affiliated with the ASSOCIATION will help to guide the immediate activites of the ASSOCIATION in its new location.

We have a "long year" ahead of us because of the early date of the Washington Convention. The tendency may be to put things off, but we cannot afford to delay action on the activities which American Pharmacy expects to have us prosecute with renewed vigor, because of the inspiration that has come to all of us from the realization of the dream of a permanent institution to house our activities.

In the near future committee appointments will be made. I hope that no one will accept a committee assignment unless it is with the intention of doing the work that accompanies the assignment. It is my further hope that all committees and all who will contribute papers to the next convention will make their plans known to the proper authorities not later than May 1, 1935. There is no good reason why the annual programs of papers and reports should not be printed in full in the JOURNAL at least one month before the convention. With your coöperation it can be done.

In expressing to the members of the AMERICAN PHARMACEUTICAL ASSOCIATION my appreciation of the high honor which they have conferred upon me in calling me to the presidency, I desire at this time to pledge my loyalty to the principles for which the ASSOCIATION stands and my earnest endeavor to promote the welfare of the ASSOCIATION and its members at all times to the best of my ability. I sincerely hope that I may have the whole-hearted coöperation of all who are called upon to serve on committees, delegations and conferences. It will be a pleasure to receive communications relating to the welfare of the ASSOCIATION at any time from any member and I assure you that constructive criticism and suggestions will be welcome.—ROBERT P. FISCHELIS, *President.*

SCIENTIFIC SECTION

BOARD OF REVIEW OF PAPERS.—*Chairman*, L. W. Rowe, George D. Beal, F. F. Berg, C. O. Lee, E. V. Lynn, John C. Krantz, Jr., Heber W. Youngken.

THE ASSAY OF HYOSCYAMUS.*,[1]

BY MARVAL D. EVANS AND EDWARD D. DAVY.

The conflicting reports which have made their appearance from time to time as to the proper procedure in the assay of mydriatic drugs, particularly *Hyoscyamus*, led to the study here reported. Likewise, results of different analysts did not agree even when the same or a similar method was employed.

A few of these differences of opinion are enumerated. Watkins and Palkin[2] attribute some of the difficulty to the presence of earthy soaps. Stikarofsky[3] suggests that since the alkaloids are sensitive to heat the operator did not observe sufficient caution while evaporating the final solvent. Hester and Davy[4] found in *Datura Innoxia* interfering ammonium compounds. Goris and Larsonneau[5] found that Belladonna leaves contain volatile bases of alkaloidal and non-alkaloidal nature. Ėwe[6] called attention to these volatile bases in the assay of Hyoscyamus and offers a method for their elimination. U. S. P. X cautions against the application of heat in evaporating the solvent to avoid decomposition of the alkaloids.

EXPERIMENTAL.

Hyoscyamus samples marketed as U. S. P. were purchased with a view to finding a drug that might yield volatile bases other than ammonia when assayed. The presence of ammonia was definitely established in *Drug I*. Another lot of drug, hereinafter referred to as *Drug II*, was found which yielded volatile, chloroform-soluble material in contrast to the former which was water soluble only. The work on the crude drug was confined to these two samples.

In the results enumerated the U. S. P. X method was followed with modifications of the technique in dealing with the final chloroformic extract.

All results reported are expressed in parts per hundred.

A. U. S. P. X method, with due consideration of the precaution against the application of heat.

I. (*a*) 0.0433 (*b*) 0.0437 II. (*a*) 0.0689 (*b*) 0.0675.

B. U. S. P. X method modified slightly to determine if volatile alkaline substance was present. *Drug I*. The final chloroformic extract was evaporated on a water-bath to 5 cc., then to dryness with continued heating with a current of dry

---

* Scientific Section, A. PH. A., Madison meeting, 1933.

[1] Submitted in partial fulfilment of the requirements for the degree of Master of Science at Western Reserve University.

[2] H. R. Watkins and S. Palkin, *J. A. O. A. C.*, 10 (1927), 130.

[3] Albin Stikarofsky, JOUR. A. PH. A., 16 (1927), 30.

[4] Earl E. Hester and Edward D. Davy, *Ibid.*, 22 (1933), 514.

[5] Goris and Larsonneau, *J. pharm. Belg.*; through *Pharm. Era*, 54 (1921), 247.

[6] George Ėwe, JOUR. A. PH. A., 21 (1932), 870.

carbon dioxide and ammonia free air, drawn slowly through the flask the vapors being passed into standard acid. The passage of air over the residue and the heat were continued for ten minutes after the chloroform had been completely removed. The contents of both flasks were titrated and calculated as alkaloid.

		(*a*)	(*b*)
I.	Alkaloid	0.0306	0.0309
	Volatile material	0.0092	0.0086
	Total	0.0398	0.0395

C. The same procedure was followed as in B except that ammonia-free water was used in the flask receiving the vapors instead of standard acid. The aqueous solutions of volatile material from two samples were Nesslerized and the presence of ammonia established qualitatively. Two additional samples were compared to a standard ammonia. The chloroform fraction showed no basic material.

		(*a*)	(*b*)		(*c*)	(*d*)
I.	Alkaloid	0.0312	0.0296		0.0302	0.0309
	Ammonia qualitative	+	+	(Quant.)	0.0081	0.0053
					0.0383	0.0362

The same procedure was followed with *Drug II* except that equal portions of chloroform and water were used in the flask through which the vapors were drawn, as previous qualitative tests showed this drug yield volatile chloroform-soluble material. The aqueous portion gave a very slight qualitative test for ammonia when Nesslerized. The chloroform portion was titratable.

		(*a*)	(*b*)
II.	Alkaloid	0.0374	0.0364
	Volatile chloroform soluble	0.0161	0.0185
	Total	0.0535	0.0549

The recovery of the volatile material was probably incomplete in both of these cases but the presence of ammonia in *Drug I* and chloroform-soluble material in *Drug II* was established.

D. U. S. P. X method, except that

1. Standard acid was added to the last 5 cc. of chloroform extract after which the chloroform was evaporated on the water-bath. Volatile bases present as ammonia or amines are titrated as alkaloid, since these are not volatilized appreciably until the chloroform is completely evaporated.

I. (*a*) 0.0509 (*b*) 0.0489 II. (*a*) 0.0732.

2. After titration of the samples above (D 1.) each was made alkaline and reëxtracted with chloroform, the chloroform evaporated to dryness and the residual alkaloidal material heated at water-bath temperature for fifteen minutes to eliminate volatile bases.

I. (*a*) 0.0301 (*b*) 0.0290 II. (*a*) 0.0352.

These results compare favorably with those obtained in C. where the heat of the water-bath was applied.

3. In order to determine whether ammonium compounds are formed during the assay each of the samples above (D 2.) was made alkaline with ammonia and reëxtracted with chloro-

form. Standard acid was then added to the last 5 cc. of chloroformic extract. In event ammonium compounds soluble in chloroform are produced during the assay the values of *Drug I* should show a corresponding increase due to reforming the ammonium compounds when heat is not applied to the dry residue. *Drug II* which yielded volatile chloroform-soluble basic material should show no increase since it was eliminated when heated in (D 2.). That is precisely what happened as shown by the results.

I. (*a*) 0.0405 (*b*) 0.0381 II. (*a*) 0.0352.

As a final check on the stability of the alkaloids of Hyoscyamus at water-bath temperature, two samples of *Drug II* were assayed by allowing the final chloroformic extract to evaporate to dryness, and the alkaloidal residue heated for ten minutes on the water-bath, during which time two successive portions of 3 cc. each of chloroform were added to the residue of each sample and evaporated. The alkaloids were determined volumetrically.

(*a*) 0.0370 (*b*) 0.0350

The titrated samples were made alkaline and reëxtracted with chloroform and the same procedure repeated.

(*a*) 0.0370 (*b*) 0.0370

This offers added proof that heat applied for short intervals at full water-bath temperature causes no loss of alkaloids.

BRITISH PHARMACOPŒIA.

While the work previously reported was in progress the Sixth Revision of the British Pharmacopœia became available. Accordingly two samples of *Drug I* were run by the British Pharmacopœial method with the following results:

(*a*) 0.0303 (*b*) 0.0296

The chief objection to the method is the direction to reduce the aqueous solution *in vacuo*. This is attended with considerable bumping and the transfer of liquid from the flask may occasion some loss. On other occasions not recorded here we have used the ether-alcohol solvent in the initial extraction and find this a distinct improvement in the elimination of emulsions which are sometimes encountered with chloroform-ether solvent.

MIXTURE OF ALKALOIDS.

		Original, No Heat Applied.	Extracted Alkaloid, Heated 15 Minutes.
d-Hyoscyamine		0.0312	0.0318
l-Hyoscyamine		0.0300	0.0318
l-Scopolamine	(*a*)	0.0286	0.0284
	(*b*)	0.0248	0.0246
Atropine	(*a*)	0.0243	0.0244
	(*b*)	0.0245	0.0242
Mixture calculated to hyoscyamine		0.0731	0.0729

The residual solutions after titration were tested for chlorides with negative results.

EFFECT OF HEAT ON THE MYDRIATIC ALKALOIDS APPROXIMATING THE CONDITIONS ENCOUNTERED IN THE ASSAY OF THE CRUDE DRUG.

Samples of pure *d*- and *l*-hyoscyamine hydrobromide, *l*-scopolamine and atropine sulphate were dissolved separately in water, ammonia added, and the alkaloids extracted with chloroform. The chloroform was evaporated to 5 cc., standard acid added and the solution titrated after the chloroform had been removed by evaporation. After titration each sample was made alkaline with ammonia and reëxtracted with chloroform. The chloroform was completely evaporated at water-bath temperature and the residue heated for five minutes. Three cc. of chloroform were added to redissolve the residue, and the heating continued for ten minutes after the evaporation of the chloroform. A mixture of these alkaloids was then made and the same procedure applied. The results are given in the foregoing table.

CONCLUSIONS.

1. The present official and proposed methods of assaying Hyoscyamus do not give concordant results.

2. The varying results obtained by chemists are due to volatile bases originally present, or formed during the assay, and extracted with the alkaloid, giving unusually high results.

3. Evidence was found to substantiate both the ammonia and amine contentions and proof is given, within reasonable limits of experimental error, that the alkaloids of Hyoscyamus are not affected by exposure to the heat of the water-bath for fifteen minutes.

4. It is recommended that the alkaloidal residue be heated for fifteen minutes at water-bath temperature, adding two successive portions of five cc. of chloroform during the heating.

THE ASSAY OF HYOSCYAMUS.

BY H. G. DEKAY AND C. B. JORDAN.

(*Continued from April Journal, page 322.*)

III. COLLABORATION WORK.

Samples of the Hyoscyamus which we used in our experiments were submitted to a number of collaborators. They were asked to perform the following assays:

1. Hot Extraction Process (6).—Place 25 Gm. of Hyoscyamus in No. 60 powder in a thimble, transfer to a Soxhlet apparatus and moisten with a mixture of 8 cc. of stronger ammonia water, 10 cc. of alcohol and 20 cc. of ether, mix thoroughly, and macerate over night. Extract for 3 or 4 hours on a water-bath using ether as a solvent, evaporate the extract to about 15 cc. and then add 10 cc. of approximately *N*/10 sulphuric acid and 10 cc. of water and continue the evaporation until the ether is removed. Filter into a 100-cc. graduated flask, dissolve the chlorophyll residue in chloroform, add acidulated water and evaporate until the chloroform is removed, then filter through the same filter into the graduated flask and make up to volume. Make basic with ammonia T.S. and extract the alkaloids by shaking out with chloroform. Test for complete extraction. Evaporate or distil the chloroform to low volume, then to dryness on a water-bath and keep at this temperature for 15 minutes. Dissolve the residue in chloroform, evaporate to dryness on a water-bath and continue heating for 15 minutes. Repeat this for the third time. Take up the final residue in chloroform, add 10 cc. of *N*/50th acid, remove the chloroform by evaporation and titrate the excess acid with *N*/50th base using methyl red as an indicator.

2. Method 2.—This was the U. S. P. X process with the following modifications: The

extractive was subjected to the purification process suggested. The final chloroform extract was subjected to the same heating process as given in foregoing.

The following results were obtained (7):

Worker.		Method 1.	Method 2.
1.		0.0406%	0.0409%
2.		0.0462%	0.0673%
3.	A	0.0452%	0.0272%
	B	0.0455%	0.024 %
4.	A	0.051 %	0.0505%
	B	0.0517%	0.047 %
5.	A	0.0416%	0.0576%
	B	0.0393%	0.052 %
6.	A	0.047 %	0.0867%
	B	0.041 %	0.0717%
7.	A	0.046 %	0.032 %
	B	0.044 %	0.031 %
	Average	0.0445%	0.0452%

The letters A and B designated two different assays of the drug sent a month apart.

Method 1 has been recommended for consideration to the Sub-committee on Crude Drug Assay of the U. S. P. Revision Committee.

From the results of these experiments we have come to the following conclusions: *1*. That there is a volatile basic constituent obtained in the assay processes and *this gives the isonitrile test; 2*, the present U. S. P. X process probably does not extract much of this basic constituent; *3*, if stronger ammonia water is used in this process, the basic constituent is extracted and the results are high; *4*, the process recommended by J. J. Durrett gives results too high because it extracts these volatile bases; *5*, the Watkins and Palkin purification process has decided advantages in securing sharp end-points in titration.

IV. TO DETERMINE BASIC CONSTITUENT.

The problem now confronting us was the separation and identification of the volatile basic constituent or constituents which were evidently the cause of the discrepancies in the results of the assay processes as given on page 2 and the variation of results during our experiments.

In order to obtain the volatile material, warm dry air was passed over the residues obtained upon the evaporation of the final chloroform extraction and passed through a weak acid solution. A special drying apparatus was arranged in which the air was dried by passing it through a wash bottle of sulphuric acid, then through a calcium chloride and soda lime tower and then through a "U" tube which was heated by the water-bath. The warm dry air was passed over the chloroform residue contained in a flask, which was heated at water-bath temperature, and then passed through a dilute hydrochloric acid solution. Blank determinations were made to test the apparatus. A number of experiments were then made as follows:

Experiment 1. A 50-Gm. sample of drug was placed in a thimble in a Soxhlet apparatus, macerated and extracted according to the method on page 391. The extract was purified and filtered into a 100-cc. volumetric flask and then divided into two aliquot parts (A and B). These were made basic with ammonia water, shaken out with chloroform and the assay completed.

The purpose of this experiment was to test the personal factor of the operator. Percentages are expressed in terms of alkaloids.

Sample.	(A.)	(B.)
1.	0.1225%	0.1217%
2.	0.1366%	0.1326%
3.	0.1272%	0.125 %

The personal factor can be disregarded.

Experiment 2. 50-Gm. samples of the drug were extracted as in Experiment 1 and the extract was divided into two aliquot parts. (A) was assayed in the usual manner, and (B) was made basic and extracted with chloroform, which was evaporated to about 2 cc. and placed in the drying apparatus with the temperature controlled at 40° C. and the drying continued for 1 hour, the air being passed through a standard acid solution. The final residue was taken up in chloroform, standard acid added, chloroform removed by evaporation and the assay completed. Percentages are in terms of alkaloids.

Sample.	(A.)	(B.) Dried Residue.	Volatile Portion.
1.	0.1274%	0.0901%	0.0241%
2.	0.1352%	0.0836%	0.0433%

The above results clearly indicate a volatile base.

Experiment 3. Experiment 2 was repeated and the final chloroform residue dried at 60° C. over a period of 1 hour. Percentages are in terms of alkaloids.

Sample.	(A.)	(B.) Dried Residue	Volatile Portion.
1.	0.1352%	0.0665%	0.0125%
2.	0.146 %	0.0557%	0.0566%

In order to secure larger quantities of volatile basic material it was necessary to prepare a large Soxhlet apparatus which would extract 400 to 500 Gm. of drug. A large percolator was fixed so that a continuous extraction could be made. A number of samples were assayed according to the hot extraction process and the final chloroform residues dried in the apparatus and the volatile material collected in dilute hydrochloric acid.

The hydrochloric acid solution was evaporated to dryness and a small amount of amorphous white powder-like material was obtained having a fishy odor and giving an isonitrile reaction for primary amines. It was necessary to combine several fractions before a sufficient quantity of the material for qualitative investigations was obtained.

The following investigations were made: *1.* An organic analysis showed the presence of carbon, hydrogen, nitrogen and chlorine, the last being due, it is assumed, to the hydrochloric acid used; *2,* the white powder gave no definite melting point and the variations of the melting point led us to believe that this was a mixture. The material was made basic, extracted with chloroform and the chloroform removed below 0° C. A small amount of a volatile liquid was obtained which possessed a strong fishy odor, was basic to litmus and volatilized between 3° and 7° C. *3.* The qualitative separation for mixtures of amines given by Kamm (10) was used. A tertiary amine fraction was obtained whose hydrochloride changed at 185° C. and then decomposed at 271–275°. A chloroplatinate was made and after recrystallization it decomposed at 240–245° C. The result of these determinations led us to classify this material as trimethylamine. *4.* Attempts were now made to recrystallize the amorphous material from dilute hydro-

chloric acid and two types of material resulted, one a silky, needle-like crystal, and the other an amorphous mass. The needle-like crystals were carefully collected by mechanical separation and they gave a sharp melting point of 171° C. These crystals were made basic and extracted with chloroform, after which they were evaporated below 0° and we again obtained a small amount of liquid having a fishy odor, basic to litmus and volatilizing between 3° and 7° C. We believe that this compound is dimethylamine.

A further investigation of the presence of bases in the crude drug was made as follows: 500 Gm. of drug were macerated over night with ½ to 1% NaOH solution, then steam distilled and four liters of distillate were collected in dilute hydrochloric acid. The distillate was evaporated to a syrupy consistency. It became dark brown in color and gave the characteristic odor of the drug. The syrupy residue was diluted with distilled water and clarified by the use of charcoal. It was then evaporated to dryness and a copious white precipitate was obtained.

The precipitate showed the presence of chloride and ammonia and gave an isonitrile reaction. Any basic material present was separated from ammonium chloride by extraction with hot absolute alcohol. About 0.1 Gm. of alcohol-soluble material was obtained. The alcohol-insoluble material did not respond to the isonitrile test. Further tests proved this to be ammonium chloride. The alcohol-soluble residue was again treated with hot alcohol in hopes to make a further separation, by fractional precipitation, and a small amount of material was obtained which *gave the isonitrile test.* Melting-point determinations were made which were variable showing a slight change at 170°, again at 185° and apparent decomposition at 265°. A chloroplatinate was prepared which was apparently only one substance as examined under the microscope. This derivative decomposed at 236–242°. The remainder of the base was dissolved in water, made basic with ammonia T.S. and extracted with chloroform which was removed in the cold. A small amount of a viscous liquid was obtained which possessed a fishy odor and volatilized at 3° to 7° C., again leading us to believe that trimethylamine was present.

Since the W. & P. extraction process (macerating over night with stronger ammonia water followed by hot extraction) gave much higher yields of basic material than were secured in the U. S. P. X method and since a mixture of amines was obtained in these residues, we were led to believe that these amines might be due to decomposition of some basic material during the assay process. The presence of trimethylamine is not uncommon in those plants containing choline as a constituent. According to Kunz (8), Tschirch (9) and Pictet and Biddle (11), choline has been found in *Hyoscyamus niger*. We tested the drug for the presence of choline by the process outlined by Kunz (8) for the isolation of choline from extracts of Belladonna.

We isolated a product, by this procedure, which gave the following reactions: A precipitate was obtained with Mayer's reagent which melted at 110°. A chloroplatinate was prepared which decomposed at 240–242° C. The material was treated with moist silver oxide and a distinct trimethylamine odor was obtained. These same tests were performed upon known choline hydrochloride obtained from Eastman Kodak Company and the results checked those which we had obtained upon our product. We therefore believe that this verifies the presence of choline in *Hyoscyamus niger* as reported by Kunz and others.

The decomposition products of choline are usually given as trimethylamine and glycol. This led us to treat known choline hydrochloride by the hot extraction process given previously. The final chloroformic extract was divided into two equal parts. The first was evaporated to about 2 cc., placed in the drying apparatus and warm dry air passed over it for an hour, and the air passed through a weak hydrochloric acid solution. This hydrochloric acid solution gave tests for trimethylamine and a faint isonitrile reaction. The second portion was evaporated to low volume, standard acid added, chloroform removed by evaporation and excess acid titrated using $N/50$ NaOH. A basic material was definitely indicated.

SUMMARY AND CONCLUSIONS.

1. The alkaloids of Hyoscyamus are much more stable than they are usually assumed to be. When chloroform solutions of them are evaporated they can be heated at the temperature of the water-bath one or two hours without decomposition.

2. The hot extraction process recommended to the Revision Committee gives much too high results because of the fact that volatile bases other than alkaloids are extracted and assayed as alkaloids. In a smaller measure the same is true with the U. S. P. X process.

3. The presence of choline in Hyoscyamus has been reaffirmed.

4. The discrepancy between the results of the hot extraction process and the U. S. P. X process of assay is presumably explained by the fact that the former because of the presence of stronger ammonia water and heat decomposes more of the plant choline.

5. Trimethylamine and a primary amine were found in the residues secured by the hot extraction process.

6. Indications of the presence of dimethyl were obtained but not confirmed.

7. Any assay process for Hyoscyamus must take into consideration the elimination of volatile bases, other than alkaloids, that may be extracted.

We recommend the following assay process:

Place 25 Gm. of Hyoscyamus in No. 60 powder in a thimble, place the thimble in a Soxhlet extractor and moisten with a mixture of 8 cc. of stronger ammonia water, 10 cc. of alcohol and 20 cc. of ether, mix thoroughly, macerate over night, then extract for not less than 3 hours on a water-bath using ether as a solvent. Evaporate the extractive to about 15 cc. and then add 10 cc. of approximately $N/10$ sulphuric acid and 10 cc. of water. Continue the evaporation until the ether is removed. Filter into a separatory funnel, dissolve the chlorophyll residue in chloroform, add acidulated water and evaporate until the chloroform is removed and filter into the funnel through the same filter paper. Make the filtrate basic with ammonia T.S. and extract the alkaloids by "shaking out" with chloroform. Test for complete extraction of alkaloids. Evaporate or distil the chloroform to low volume, then evaporate to dryness on a water-bath and keep at this temperature for 15 minutes. Dissolve the residue in chloroform, evaporate to dryness on the water-bath and continue the heating for 15 minutes. Repeat this for the third time. Take up the residue in chloroform, add 15 cc. of fiftieth normal sulphuric acid, remove the chloroform by evaporation and titrate the excess acid with fiftieth normal base using methyl red as indicator.

REFERENCES.

(1) Watkins and Palkin, JOUR. A. PH. A., 16 (1927), 1039.
(2) U. S. P. XI Revision Bulletins, Sub-committee No. 6, Assay Bulletin 12, page 28.
(3) U. S. P. XI Revision Bulletins, Sub-committee No. 6, Assay Bulletin 16, pages 48–49.
(4) U. S. P. XI Revision Bulletins, Sub-committee No. 6, Assay Bulletin 24, pages 86–95.
(5) Schou and Bjerregaard, *Dansk Tids. Farm.*, 6, 185–193; through *C. A.*, 27 (1933), 5145.
(6) Sub-committee No. 6, Assay Bulletin 41, pages 153–170.
(7) Sub-committee No. 6, Assay Bulletin 45, pages 176–181.
(8) Kunz, *Arch. für Pharm.*, 223 (1885), 701–709.
(9) Tschirch, "Handbuch der Pharmacognosie," Band 3, Ab. 1, page 291.
(10) Kamm, "Qualitative Organic Analysis."
(11) Pictet and Biddle, "The Plant Alkaloids."

ISOLATION AND IDENTIFICATION OF SUCROSE FROM SENEGA.*[1]

BY RALPH BIENFANG.

As early as 1836, Price made mention of a sugar-like substance which he noticed in an extract of senega. In 1894 Guillaume-Gentil reported that he obtained a carbohydrate, polygalite, using a method projected by Chodat in obtaining it from the root of Polygala amara. Characters for this substance given by Guillaume-Gentil were, melting point 138°, easily soluble in water, hot alcohol and practically insoluble in ether. Fehling's solution had no immediate effect upon an aqueous solution of it, but after 24 hours, a red sediment was noticed in the bottom of the tube. In 1896, Schroeder in this country reported the presence of 5.82% of sucrose, and in 1896 Kain in Germany likewise reported sucrose as a constituent of senega.

Seven Kg. of senega in a No. 20 powder were first extracted with petroleum ether and then with alcohol. The alcoholic extracts were turbid, and so were filtered before being concentrated. The concentrated alcoholic extract was put into glass containers and allowed to stand at room temperature for two weeks. At the end of this time an appreciable crystalline deposit had formed on the sides and bottoms of the containers. This was broken up, filtered out, redissolved in diluted alcohol, and shaken with animal charcoal until a colorless syrup was obtained. In this syrup, upon standing, crystalline blocks were formed. These crystals obtained were sweet and so some of the material was tested with the Molisch reagent for carbohydrates. The result was positive. With Fehling's solution a negative result was obtained. The crystals were soluble in water and hot alcohol, but insoluble in cold alcohol and ether. The melting point was found to be 186–187° C.; specific gravity 1.5734 at 20° C. A specific rotation of +67.5° became −20.4° after boiling with HCl. An acetate was attempted with the production of a bitter syrup insoluble in water but soluble in alcohol. Glucosazone was formed when it was heated for 46 minutes with phenylhydrazine hydrochloride and sodium acetate.

* Scientific Section, A. PH. A., Madison meeting, 1933.

[1] From a thesis submitted in partial fulfilment of the requirements for the Ph.D. degree, University of Wisconsin, 1929.

Since the above characters of the isolated material agree with those recorded for sucrose, the material was concluded to be sucrose.

BIBLIOGRAPHY.

R. Price, *Am. J. Pharm.*, 8 (1836), 92.
B. Guillaume-Gentil, *Schweiz. Wochenschr. Chem.-Pharm.*, 32 (1894), 340.
J. H. Schroeder, *Am. J. Pharm.*, 68 (1896), 178.
J. Kain, *Pharm. Post*, 31 (1898), 61, 73, 81, 93, 105, 329, 341.

PSYLLIUM SEED II. SO-CALLED "ADEX PSYLLIUM."*

BY HEBER W. YOUNGKEN.

In a previous article (see JOUR. A. PH. A., 21 (1932), 1265–1271), some studies were reported that had been made by the author on commercial Psyllium seeds. Since that time he has examined many commercial samples of Psyllium including the article known as "Adex Psyllium."

Psyllium seed has become a broad commercial synonym for a variety of seeds belonging to the genus *Plantago*, many reputable dealers specifying on their labels the particular commercial variety of Psyllium by limiting adjectives preceding the noun, such as French-, Blonde-, White-, Brown-, Black-, German-, Spanish-, and some have supplemented the common commercial name with the scientific or botanical name of the plant claimed to yield the product.

During the course of the author's earlier observations on the commercial Psylliums, he came upon a package labeled "Adex Psyllium Seed." Upon examination of its contents it proved to consist of the nutlets or fruits of a Labiate, and this product was being offered as a kind of Psyllium seed. Later, he received samples of this very article by two dealers who sought his opinion on the quality of "this form of Psyllium seed."

Of course it was not a Psyllium seed at all, not even a seed, but a fruit of the Labiate which Clevenger had previously detected and reported to be yielded by *Lallemantia royleana* (1).

The plant was named after the botanist, Royle, who collected it in the province of Kanaor in India.

The author planted several lots of these small fruits in seed boxes and pots and reared several plants therefrom which he compared with the description of *Lallemantia Royleana* Benth. in De Candolle's *Prodromus* (2) and found the characteristics of them to tally with the statements on this species in that authoritative work.

DESCRIPTION OF LALLEMANTIA ROYLEANA, BENTHAM.

An annual herb native to India and Persia attaining a height of from 5 to 18 inches. Stem quadrangular, simple to branched, glabrate at base, softly villose beyond and pubescent at the apex. Foliage leaves opposite, ± cordate below, petiolate, green, base of the lower cuneate, of the upper narrowed into petiole; margin of lower leaves crenate; inflorescence a long, interrupted spike-like raceme of verticillasters; bracts small petiolate; flowers small, tubular-bilabiate the calyx green, pubescent, 5-toothed and striate; the corolla pale purple to blue with a slender tube and a 2-lipped limb; fruits 4 dull black, oblong-ovate nutlets; seed exalbuminous.

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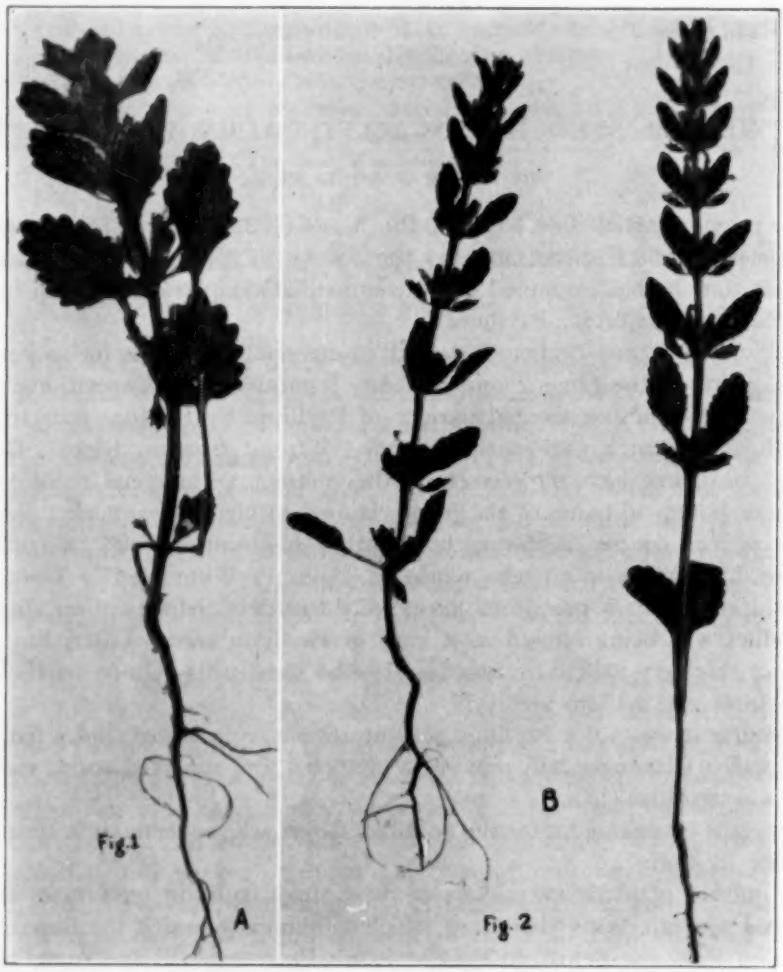
* Scientific Section, Madison meeting, August 1933.

Plants grown by the writer from commercial "seed" were in flower in late July. They varied from 12 to 30 cm. in height. The foliage leaves were petiolate, the lower up to 4 cm. in length, the lamina cordate, up to 2 cm. long and 1 cm. broad, the apex obtuse, the base cuneate, margin crenate and surface villose. The upper foliage leaves were oblong-ovate, spatulate to lanceolate with mucronate



Figs. 1 and 2.—Flowering plants of *Lallemantia Royleana* Benth. grown from two lots of so-called "Adex Psyllium seed."

apex, attenuate base and dentate to serrate margin. The bracts were oblong, sharply serrated, the teeth terminating in long, lilac-colored bristles. The flowers were tubular-bilabiate, each with a green, slender, tubular calyx 5 to 6 mm. long, possessing 15 villose ribs and a lilac to purplish blue, tubular bilabiate corolla.

PHYSICAL CHARACTERISTICS OF FRUITS.

When examined under a lens the nutlets are oblong-ovate, dull black to dark brown (immature fruit) with a light brown edge when examined over a surface illuminated from below, with a dorsal convex surface and two plane or slightly concave ventral surfaces, the latter sepa-

rated by a longitudinal ridge which extends to a cream-colored, elevated, saddle-shaped hilum at the narrow end, 3 to 3.5 mm. long and 1 to 1.2 mm. wide, internally the cut surface showing a narrow black pericarp and a large gray to bluish gray oily seed; odor indistinct; taste sweet and mucilaginous upon mastication.

HISTOLOGY OF FRUITS.

Cross and surface sections were cut in cork and paraffin and separately examined in water, iodine water, phloroglucin-HCl, picric acid and in xylol mounts under a compound microscope. A cross section cut through the middle region of the fruit exhibits an irregular, triangular outline with rounded angles, one convex side and two more or less concave sides.

Fig. 3.—Fruits of *Lallemantia Royleana* offered on the American market as "Adex Psyllium" and more recently as a "Black Plantago Psyllium seed." Photomicrograph × 10.

Pericarp.—This consists of an epidermis and a brownish black pigment layer. The epidermis is mucilaginous, from 21.24 to 32 microns in radial breadth, its cells showing prominent, thick radial walls, outer walls which are thin in the middle and thickened toward the radial walls and thin, inner walls. Many of the outer walls appeared missing. The radial walls of adjacent cells terminate in shallow saucer or cup-shaped structures which give them the appearance of long-stemmed goblets or peltate structures. The lumina of these epidermal cells are filled with cell content mucilage.

When mounts of dry cross sections are irrigated with water, the outer walls of the epidermal cells burst and long, laminated finger-like processes of mucilage quickly protrude. The mucilaginous processes extend from the inner wall of each of the epidermal cells and project outward between the jagged cup-like ends of the radial walls for a considerable distance beyond the margin of the section. The pigment layer contains dark brown amorphous matter.

Seed.—Beneath the pericarp and adhering thereto is the seed coat which is composed of outer brown, narrow, palisade cells and inner brown, irregular to stellate cells, the latter having long, slender processes.

The embryo, consisting of 2 large fleshy cotyledons and a hypocotyl, fills up the large central part of the seed. Its small parenchyma cells possess thin walls and contain minute aleurone grains and fixed oil droplets, but no starch.

BEHAVIOR OF ENTIRE FRUITS IN WATER.

When 1 Gm. of the entire fruits was placed in a 50-cc. graduated cylinder, water added to the 50-cc. mark and the contents agitated at intervals during 24 hours, at the expiration of which time the total volume occupied by the swollen fruits was noted, the final reading showed the swollen fruits occupied a volume up to the 40-cc. mark. In 48 hours the volume occupied was 47 cc. The fruits, enveloped in mucilage, tended to cohere.

When entire dried fruits are examined in water under the compound microscope, the epidermis swells, the outer walls burst, liberating numerous finger-like processes of mucilage which later coalesce, forming a bluish tinged mucilage which tends to adhere tenaciously to the fruits. Within 24 hours after a fruit has been

macerating in water, the mucilaginous exudate adherent on its outer surface occupied an area of at least six times that of the fruit included within it. As noted above in the sections, so also in the entire fruit, the radial walls of the epidermal cells appeared as long-stemmed goblets whose terminal cups frequently showed jagged margins. The mucilage at the end of this period appeared as irregular, interrupted, radiating strings.

Recently the writer has been informed by a friend at Collegeville, Pa., of a serious case of illness following ingestion of a drug answering the description of this one. From the tendency of the fruits to cohere, and from the microscopical studies of the outer fruit wall after maceration in water, as aforementioned, it

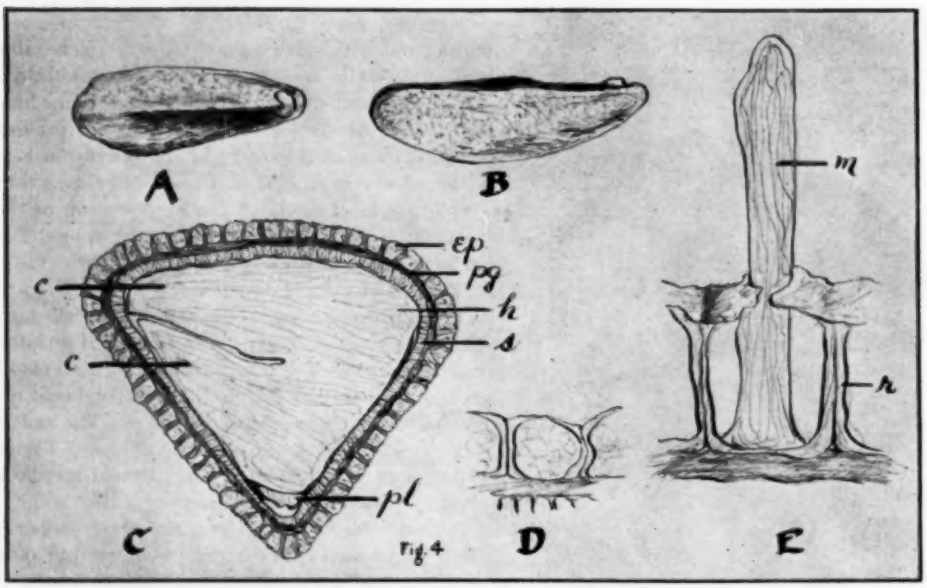


Fig. 4.—Fruit of *Lallemantia Royleana*, commercially known as *Adex Psyllium*. A, ventral surfaces. B, dorsal convex surface and portion of one of the ventral sides. C, transverse section, showing epidermis (*ep*) and pigment layer (*pg*) of pericarp, seed coat (*s*), cotyledons (*c*) and hypocotyl (*h*) of embryo, and placenta (*pl*). D, a more magnified view of a portion of the epidermis and subjacent tissue in cross section of dry fruit. Note mucilage in epidermal cell and radial walls with middle lamellæ. E, view of the outer portion of the cross section of the fruit directly after irrigation of mount with water. *m*, mucilage; *r*, peltate structure formed of radial and outer walls of adjacent epidermal cells.

is conceivable how such could follow. When taken into the intestine, it is probable that intestinal movements caused formation of a bezoar mass with the rigid, peltate projections of epidermis of the fruits interlocked, occluding the passageway.

CONCLUSION.

While mucilage of fruits of *Lallemantia Royleana* may be found of some service in the arts, if means for properly separating it can be devised, the writer is of the opinion that the internal administration of this fruit to man or beast is dangerous.

BIBLIOGRAPHY.

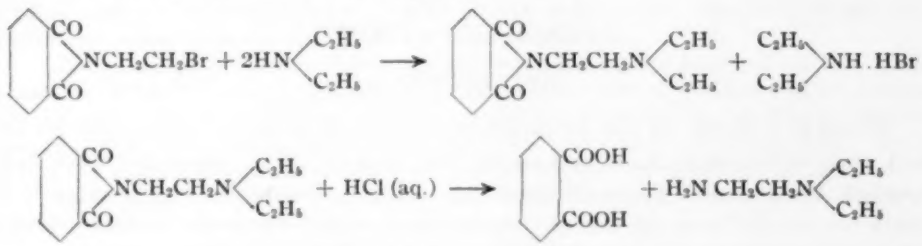
(1) J. F. Clevenger, *Drug Markets*, 29 (1931), 236.
(2) A. De Candolle, *Prodromus Syst. Natur. Regni Veg.*, 12 (1848), 404.

Massachusetts College of Pharmacy, August 15, 1933.

A CONVENIENT LABORATORY METHOD FOR THE PREPARATION OF UNSYMMETRICAL DIETHYL ETHYLENE DIAMINE.*

BY W. A. LOTT AND W. G. CHRISTIANSEN.

The following is a detailed description of a modification of the method described by Ristenpart for the preparation of unsymmetrical diethyl ethylene diamine; it gives good results and is very convenient.



Procedure.—One hundred and twenty-three Gm. of bromethylphthalimide is boiled under a reflux condenser for 12 hours with 70 Gm. diethylamine dissolved in 300 cc. dry toluene. After the first 3 hours' boiling, the diethylamine hydrobromide is removed by filtration before continuing (*Note 1*). After removing the remainder of the diethylamine hydrobromide by filtration, the reflux condenser is replaced by a condenser arranged for downward delivery, and the toluene is removed by distillation. The reflux condenser is now returned into place and the residue is boiled for 3 hours with 420 cc. of 20% HCl. Upon cooling, the phthalic acid is filtered off and leached with warm (not hot) water to recover any product retained by it. The solution of the diamine hydrochloride is concentrated in an open dish on the steam-bath until it is a thick, viscous syrup and with good external cooling, the syrup is made strongly alkaline by means of 40% KOH. Now 25 cc. isopropyl alcohol is added, and then an excess of solid KOH, in small pellets, which causes the appearance of a copious precipitate of potassium chloride. The reaction mixture is allowed to settle out in a tall narrow cylinder or centrifuged. The isopropyl alcohol solution of the amine is dried carefully over solid KOH and subjected to distillation.

Thirty-two Gm. or 61% of material boiling at 143–147° C. is obtained (*Note 2*). The pure material boils at 145° C.

Note.—1. About 84% of the theoretical diethylamine hydrobromide is removable after 3 hours. About 14% additional is removable after 10 hours, and most of the remaining 2% is removable after 12 hours.

2. Practically all of the loss of yield is mechanical loss in separating the amine solution from the KCl and strong potash. Further extractions with isopropyl alcohol can be made, but the main product should not be dissolved in a larger volume of alcohol than that specified since much amine boils over with the alcohol, making rectification difficult.

Other Methods of Preparation.—Ristenpart (*Ber.*, 29 (1907), 2526) uses the same reactions, but condenses the diethylamine with the bromethylphthalimide

* Scientific Section, A. PH. A., Madison meeting, 1933.

in a sealed tube at 100° C. without a solvent. The method is inconvenient and usually incomplete due to caking of the phthalimide and the amine hydrobromide.

It has also been prepared by condensing diethylamino ethyl chloride with potassium phthalimide, followed by acid hydrolysis.

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STEROL GLUCOSIDES.

BY OLE GISVOLD.

Whereas a survey of the literature reveals the fact that phytosterols, for the most part, occur as such, it also shows that several sterol glucosides have been reported, the so-called phytosterolins (1). If the amounts of sterols present in plants are small, those of the phytosterolins reported are even smaller. Hence the sugars obtained upon hydrolysis have not been identified completely.

Under these circumstances it naturally seemed desirable to synthesize sterol glucosides with glucose and other sugars. Thus the glucose glucosides of sitosterol and cholesterol were prepared by Salway (2) in 1913, and that of ergosterol by Mac Corquodale (3) in 1930. Having worth-while amounts of several phytosterols on hand, the synthesis of as many of their glucosides as time and material permitted was undertaken.

The method of preparation employed was essentially that used by Power and Salway in 1913 in the preparation of the sitosterol and cholesterol glucosides and again by Mac Corquodale in 1930 in the preparation of ergosterol glucoside.

The procedure is essentially as follows, with some modification of deacetylation.

Two Gm. of dry sterol, 3 Gm. of pure, freshly crystallized tetracetyl bromglucose were dissolved in 100 cc. of dry ether and 3 Gm. of dry freshly precipitated silver oxide were added. The mixture was shaken continuously for 8 hours, centrifuged, filtered and the ether distilled off. The residue thus obtained was recrystallized once from 95% alcohol. The partially purified product was dissolved in warm absolute alcohol and deacetylated with a solution of freshly prepared sodium ethoxide. The insoluble precipitate thus obtained was filtered off and washed twice with small quantities of hot alcohol. The crude product thus obtained was recrystallized from a hot saturated solution using a mixture of 95% alcohol and pyridine as a solvent. The glucoside crystallized very well and a pure product was thus obtained.

Preparation of Aceto-Brom Glucose (4).—The procedure employed was that described by Levene and Raymond, and excellent yields were obtained.

Dry HBr was passed into acetic anhydride until the latter contained 40 Gm. of the gas per 100 Gm. of the finished reagent. For each 50 Gm. of pure anhydrous powdered glucose, 250 cc. of the reagent were used. The glucose was divided into 10-Gm. portions, each kept in a stoppered test-tube. The reagent was cooled to 10° and the glucose added under constant shaking. The temperature was not allowed to exceed 30°. The first portion of glucose dissolved quite slowly but the later portions more rapidly. Before additional portions were added the solution was cooled to 10°. After all the glucose had been added, the solution was cooled to 0° and dry HBr was passed into it until the total content was 60 Gm. per 100 Gm. of acetic anhydride. The solution should be only a light straw color. It was permitted to stand for one hour and then concentrated to half its original volume. Thirty cc. of toluene were added and the distillation continued until the residue became a thick syrup. Three additional portions of toluene were added and removed by distillation. All reagents were removed as completely

as possible. The thick syrup thus obtained was taken up in ether, shaken with charcoal and the mixture filtered. To this warm solution, petroleum ether was added until the cloudiness obtained just threatened to remain. The solution was allowed to cool when the product crystallized readily. If the product fails to crystallize, a few seed crystals will readily induce crystallization.

Preparation of Dry HBr.—10–15 Gm. of naphthalene were dissolved in a small quantity of xylene (or high boiling kerosene) and the solution placed in a 500-cc. Florence flask. The flask was connected by means of a bent glass tube with a Woolff bottle which contained 48% HBr solution with a little red phosphorus in suspension. This, in turn, was connected with a U tube containing red phosphorus distributed by means of glass wool. The gas was led through a $CaCl_2$ tower and then through two U tubes of P_2O_5 in glass wool. The bromine was added to the naphthalene by means of a separatory funnel at a slow rate.

Preparation of Dry Ether.—The ether was shaken first with a saturated solution of KCl. It was then allowed to stand over $CaCl_2$ for several days and filtered. P_2O_5 was added in excess. The decanted ether was finally dried with sodium and potassium alloy prepared in the following manner: Xylene was heated to 80°–90° in an evaporating dish and the previously cleaned sodium and potassium were placed into it and pressed together with a stiff spatula until a liquid alloy was obtained. The ether thus dried was distilled and kept in 100-cc. bottles previously dried in an oven at 110°.

Preparation of the Silver Oxide.—The silver oxide first used was prepared by precipitating equimolecular portions of silver nitrate and sodium hydroxide. However, no condensation could be effected even though it was freshly prepared. If, however, the silver oxide was prepared in the following manner (5), condensation could be effected.

A 10% solution of silver nitrate was heated to 86° and added rapidly, with rapid stirring, to a hot 2.3% solution of sodamide. The precipitate was washed 5 times by decantation with hot water, then by decantation with 5 parts of absolute alcohol, and filtered by means of suction. It was washed once with absolute alcohol, dried in the air and then dried over P_2O_5 in a vacuum and used within 48 hours.

In order to become acquainted with the technique in effecting condensation, cholesterol and ergosterol were experimented with. As was mentioned before in the preparation of the silver oxide, several attempts were made before effecting condensation. The elaborate procedure needed to run one experiment required some time. However, the technique once mastered, no further difficulty was encountered although the yields were not high.

Ergosterol Glucoside.—The ergosterol used in this synthesis was obtained from oil of ergot. The glucoside was obtained in fine white needles m. p. 314.5°. The melting point recorded by Mac Corquodale was 315°.

Stigmasterol Glucoside.—The stigmasterol used was obtained from Echinacea. It had a melting point of 170°. Very fine needles of the glucoside were obtained which melted at 299°.

Phytosterol Glucoside.—The phytosterol used in this synthesis was obtained from milfoil and melted at 134°. The synthesized glucoside was obtained in fine white needles which melted at 293°.

Chloresterol Glucoside.—The chloresterol used in this experiment was obtained from gall stones and had a melting point of 146°. The glucoside was obtained in the form of fine white needles which melted between 280° and 284°. The melting point recorded by Salway (2) was 270–285°.

REFERENCES.

(1) F. B. Power and A. Salway, *J. Chem. Soc.*, 103 (1913), 399.
(2) A. Salway, *Ibid.*, 103 (1913), 1022.

(3) Mac Corquodale, *J. Chem. Soc.*, 52 (1930), 2512.
(4) P. A. Levene and A. L. Raymond, *J. Biol. Chem.*, 90 (1931), 247.
(5) Helferich and Klein, *Annalen*, 450 (1926), 219.

THE GRAVIMETRIC AND VOLUMETRIC DETERMINATION OF BRUCINE AND STRYCHNINE AS DICHROMATE.*

BY I. M. KOLTHOFF AND J. J. LINGANE.

Brucine and strychnine salts give crystalline precipitates with alkali dichromates and chromates. No use for quantitative purposes has been made of these precipitation reactions. In the following, the properties of the alkaloid dichromates are described and a procedure is developed by which brucine and strychnine can be determined quantitatively as dichromates. These are much less soluble than the corresponding chromates, the latter not being suitable for quantitative purposes.

Materials Used.—Brucine hydrochloride and *strychnine* sulphate solutions of known concentration[1] were used.

Brucine Dichromate.—This salt was prepared by precipitation of brucine hydrochloride with a slight excess of potassium dichromate solution. The precipitate was washed thoroughly with water; it consisted of very fine crystals. (Portion I.) Part was recrystallized from hot water in order to obtain larger crystals. (Portion II.) Both portions were dried in the air.

Strychnine Dichromate.—Two portions were prepared in a way similar to that described above.

Potassium Dichromate.—A C.P. product was thrice recrystallized from water and dried at 200°. Standard solutions were prepared by dissolving weighed samples in a known volume of water.

Ferrous Ammonium Sulphate.—C.P. Solutions were prepared in 0.5 to 1*N* sulphuric acid and standardized against dichromate.

SENSITIVITY OF PRECIPITATION OF BRUCINE AND STRYCHNINE AS DICHROMATE.

One cc. of 1*N* potassium dichromate was added to 10 cc. of the alkaloid solution. A 0.004 molar brucine hydrochloride solution gave a crystalline precipitate after 1 minute of standing, 0.002 molar after 5 minutes, 0.001 molar after 15 minutes and 0.0005 molar solution a slight precipitate after 2 hours.

The sensitivity of the strychnine precipitation was the same but the precipitate was formed more quickly. Thus a 0.0005 molar strychnine solution gave a slight precipitate after 10 minutes of standing. According to the above about 2 mg. of brucine or strychnine can be detected in 10 cc. of solution by the dichromate test.

COMPOSITION OF THE PRECIPITATES.

Water Content.—The samples were kept over deliquescent sodium bromide until constant weight was attained. They were then placed in vacuum desiccators

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* Scientific Section, A. PH. A., Madison meeting, 1933.

[1] See THIS JOURNAL, April 1934, page 302.

over concentrated sulphuric acid or phosphorous pentoxide and kept therein until the weight was constant again. Upon continued drying in a vacuum oven at 70° no further loss in weight was noticed. The hydration and dehydration process appeared to be completely reversible, indicating that no decomposition had taken place on drying. It should be mentioned that brucine dichromate which had attained constant weight over deliquescent sodium bromide lost 0.5 to 0.6% water when placed over deliquescent calcium chloride. The strychnine compound lost under the same conditions 0.4 to 0.5% in weight. Fairly large crystals of strychnine dichromate after attaining constant weight over deliquescent calcium chloride lost 0.86% in weight on drying in a vacuum at 70°. The same crystals after having reached constant weight over deliquescent sodium bromide lost 1.35% in weight. The same preparation was ground to a fine powder; the corresponding losses in weight were 0.82% and 1.23%, respectively.

Chromium Content.—Samples which had attained constant weight over sodium bromide were ignited and weighed as Cr_2O_3. In order to test the purity, the latter was transformed by a sodium peroxide fusion and oxidation with potassium bromate in acid medium to dichromate and later titrated with a standardized iron solution. In other portions of the original samples, the dichromate content was determined in a volumetric way as will be described below.

Alkaloid Content.—Suspensions of the products were made alkaline with sodium hydroxide and the alkaloids shaken out with chloroform. The alkaloid content of the chloroform was determined by evaporation to dryness, weighing and titrating in the usual way.

The results given in Table I show that the brucine dichromate has the composition $(C_{23}H_{26}N_2O_4)2.H_2Cr_2O_7.5H_2O$; M = 1096.6, and the strychnine dichromate $(C_{21}H_{22}N_2O_2)_2.H_2Cr_2O_7.1H_2O$, M = 904.4. It is possible, however, that the latter product contains only half a molecule of water of crystallization.

TABLE I.—COMPOSITION OF BRUCINE AND STRYCHNINE DICHROMATE.
(After reaching constant weight over deliquescent sodium bromide.)

	$(Brucine)_2H_2Cr_2O_7.5H_2O$.		$(Strychnine)_2H_2Cr_2O_7.H_2O$.	
	Found %	Calculated %	Found %	Calculated %
Water	7.8	8.2	1.3	2.0
$H_2Cr_2O_7$	19.93	19.88	24.04	24.11
Alkaloid	71.8	71.87	73.7	73.91

SOLUBILITY OF BRUCINE AND STRYCHNINE DICHROMATE.

Samples were shaken with various solvents for 24 to 50 hours at room temperature. The amount dissolved was determined by making the filtrate ammoniacal and shaking out with chloroform. After evaporation of the latter the residue was titrated acidimetrically using methyl red as indicator. In the solubility determination in alcohol a known volume of the filtrate was evaporated to dryness and the residue weighed.

From the data given in Table II it is evident that the precipitation of brucine and strychnine is quantitative in a medium containing an excess of potassium dichromate amounting to a concentration of 0.05 molar.

TABLE II.—SOLUBILITY OF BRUCINE AND STRYCHNINE DICHROMATE. (22 ± 2°.)

Solvent.	Brucine Dichromate. Moles p. l.	Brucine Dichromate. $(Bruc)_2H_2Cr_2O_7$ Mg. per 100 cc.	Strychnine Dichromate. Moles p. l.	Strychnine Dichromate. $(Strychn)_2H_2Cr_2O_7$ Mg. per 100 cc.
Water	0.000605	61.0	0.00050	45.0
0.0017 molar $K_2Cr_2O_7$	0.00020	21.0	0.00020	18.0
0.05 molar $K_2Cr_2O_7$	0.000065	6.5	0.000075	6.8
95% alcohol	0.00076	76.0	0.00069	62.0

GRAVIMETRIC DETERMINATION OF BRUCINE AS DICHROMATE.

To 15 to 25 cc. of the brucine salt solution containing 100- to 200-mg. alkaloid, enough 0.25 molar potassium dichromate is added to make the concentration of the latter about 0.05 molar after the precipitation. The precipitate is allowed to stand for at least one hour, filtered on a sintered glass crucible (1G-3) and washed with a saturated solution of brucine dichromate in water. This is followed by three washings with 2–3-cc. portions of alcohol and a few washings with ether. Air is drawn through the crucible for a few minutes and the weighing made after standing in the air for at least 15 to 20 minutes. The brucine dichromate $(Brucine)_2H_2Cr_2O_7.5H_2O$ contains 71.87% brucine.

VOLUMETRIC DETERMINATION OF BRUCINE AS DICHROMATE.

If brucine dichromate is dissolved in dilute sulphuric acid (1 to 2*N*), an appreciable oxidation takes place as indicated by the development of a red color of an oxidation product of brucine and the low values obtained in the titration with ferrous sulphate. However, if the thoroughly wetted precipitate is dissolved in an excess of an acid ferrous iron solution the loss by oxidation is very small (of the order of 0.5%). The dichromate content of samples which showed constant weight over deliquescent sodium bromide was determined by dissolving a known weight in a standard ferrous ammonium sulphate solution which was 1*N* with respect to sulphuric acid and back titrating with standard dichromate in the presence of phosphoric acid and diphenylamine sulphonate as indicator. The results of six determinations were 0.5 to 1% lower than those calculated. Blank titrations of ferrous iron in the presence of brucine showed that the dichromate-iron reaction induces a slight oxidation of brucine by dichromate. Thus it was found that in the titration of 250 cc. 0.01*N* ferrous sulphate in 1.5*N* sulphuric acid in the presence of 160-mg. brucine and 10 cc. 25% phosphoric acid the error amounted to only 0.5 to 0.6%.

PROCEDURE FOR THE VOLUMETRIC DETERMINATION OF BRUCINE.

The washed precipitate as obtained in the gravimetric procedure is dissolved in an excess of a ferrous iron solution by adding 25 to 50 cc. 0.1*N* ferrous ammonium sulphate in 1*N* sulphuric acid to the precipitate in the crucible and receiving the filtrate in an Erlenmeyer flask. The crucible is washed thoroughly with 1 to 2*N* sulphuric acid and the excess iron in the combined filtrates titrated with 0.1*N* dichromate after addition of 10 cc. 25% phosphoric acid and 10 drops of 0.2% diphenylamine sulphonate as indicator. One cc. 0.1*N* ferrous sulphate corresponds to 13.14 mg. of brucine.

The results of gravimetric and volumetric brucine determinations carried out under different conditions are given in Table III. It is seen that both pro-

cedures give corresponding results. If the initial volume at the beginning of the precipitation is about 25 cc., the results are about 0.3% low; at a volume of 50 cc., 1.2%; and a volume of 100 cc., 2.2%.

TABLE III.—GRAVIMETRIC AND VOLUMETRIC DETERMINATION OF BRUCINE.

(0.1585 Gm. brucine taken in all experiments.)

Total Volume, Cc.	Concentration $K_2Cr_2O_7$ in Excess Molar.	Time of Standing before Filtration, Hours.	Weight Ppt., Gm.	0.1N Fe^{++} Used, Cc.	Brucine Grav., Gm.	Found Vol., Gm.	Error. Grav. %	Error. Vol. %
25	0.06	0.7	0.2206	12.10	0.1585	0.1590	0.0	+0.3
25	0.06	0.7	0.2203	12.08	0.1583	0.1587	−0.1	+0.1
25	0.06	0.7	0.2195	...	0.1578	....	−0.4	...
25	0.06	0.7	0.2198	...	0.1580	....	−0.3	...
25	0.06	16.0	0.2191	12.02	0.1575	0.1579	−0.6	−0.4
25	0.06	16.0	0.2196	12.07	0.1578	0.1586	−0.4	+0.1
50	0.08	0.5	0.2166	11.85	0.1557	0.1557	−1.8	−1.8
50	0.08	0.5	0.2166	11.77	0.1557	0.1547	−1.8	−2.4
50	0.08	16.0	0.2190	12.10	0.1574	0.1590	−0.7	+0.3
50	0.08	16.0	0.2192	11.96	0.1576	0.1572	−0.6	−0.8
100	0.08	16.0	0.2151	11.78	0.1546	0.1548	−2.5	−2.3
100	0.08	16.0	0.2189	11.94	0.1573	0.1567	−1.1	−0.8
100	0.08	16.0	0.2130	11.65	0.1531	0.1531	−3.4	−3.4
25[a]	0.07	0.7	0.2203	12.08	0.1583	0.1588	−0.1	+0.2
25[b]	0.07	0.7	0.2190	12.03	0.1574	0.1580	−0.7	−0.3
25[c]	0.07	0.7	0.2186	...	0.1571	....	−0.9	...

[a] Solution was 0.01N in hydrochloric acid.
[b] Solution was 0.02N in hydrochloric acid.
[c] Solution was 0.04N in hydrochloric acid.

If the air-dried precipitates were kept over deliquescent sodium bromide until constant weight was reached, the results of the gravimetric determinations were about 0.5% higher than those reported. It is not recommended to dry the precipitates in an oven at 100° to 110° since part decomposes on removing the water of crystallization at this temperature.

The last three examples in the table show that the precipitations can be made from very dilute hydrochloric acid. At higher acidities (*e. g.*, 0.1N HCl) than those given, part of the brucine is lost by oxidation.

GRAVIMETRIC AND VOLUMETRIC DETERMINATION OF STRYCHNINE.

The determinations are carried out in exactly the same way as described for brucine, except that after washing with a saturated solution of the precipitate in water, the washing is continued with a saturated solution of the salt in 95% alcohol instead of with pure 95% alcohol. If the latter is used, the precipitate shows a tendency to become colloidal and part of it runs through the filter. This difficulty is obviated by washing with a saturated solution of strychnine dichromate in alcohol.

It may be mentioned that the presence of strychnine is without influence upon the titration of ferrous iron with dichromate. Some of the results of the strychnine determinations are given in Table IV. The air-dried precipitate $(Strychnine)_2$-$H_2Cr_2O_7.1\ H_2O$ contains 73.91% strychnine. One cc. 0.1N ferrous sulphate corresponds to 11.14 mg. of strychnine.

TABLE IV.—GRAVIMETRIC AND VOLUMETRIC DETERMINATION OF STRYCHNINE.
(0.1066 Gm. strychnine taken.)

Total Volume, Cc.	Concentration $K_2Cr_2O_8$ in Excess Molar.	Time of Standing before Filtration, Hours.	Weight Ppt., Gm.	0.1*N* Fe^{++} Used, Cc.	Strychnine Grav., Gm.	Found. Vol., Gm.	Error. Grav. %	Error. Vol. %
25	0.08	0.7	0.1439	9.52	0.1064	0.1061	−0.2	−0.5
25	0.08	0.7	0.1439	9.52	0.1064	0.1061	−0.2	−0.5
50	0.08	1.5	0.1428	9.38	0.1055	0.1045	−1.0	−2.0
50	0.08	64.0	0.1428	9.35	0.1055	0.1042	−1.0	−2.3
50[a]	0.08	0.7	0.3607	..	0.2666	....	0.0	...
100	0.04	20.0	0.1411	9.30	0.1043	0.1036	−2.2	−2.8

[a] 0.2665 Gm. strychnine taken.

In the first three experiments the concentration of the strychnine was 0.012 molar; in the next two, 0.006 molar; and in the last one, 0.003. It is evident that the determination gives results accurate to within 1% if the concentration of the strychnine salt is greater than 0.01 molar.

SUMMARY.

1. Brucine salts yield a precipitate with potassium dichromate, which after drying over deliquescent sodium bromide has the composition $(C_{23}H_{26}N_2O_4)_2 \cdot H_2Cr_2O_7 \cdot 5\ H_2O$. Strychnine dichromate prepared under the same conditions has the composition $(C_{21}H_{22}N_2O_2)_2\ H_2Cr_2O_7 \cdot 1\ H_2O$.

2. Gravimetric and volumetric procedures are described for the quantitative determination of brucine and strychnine as dichromates.

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THE MICRO-PROJECTOR.*

BY S. H. OSWALD AND L. K. DARBAKER.

Projection of the microscopic slides is fundamentally the same as projection of transparent slides with the magic lantern, or of films with the moving-picture machine. The machines all have the same essential parts and differ only in their construction, being altered according to the condition under which they are to be used and the purpose for which they are intended. In micro-projection, on account of the small aperture of the lens and the very short focal distance, all these parts must be as nearly perfect as possible and must be assembled with the greatest care. The modern projection microscope is of comparatively recent origin.

In early times the lack of proper lenses and adequate light supply hindered the development of all projection apparatus and especially the micro-projector. It is not known who first discovered the phenomenon of projection. Aristotle and Euclid mention the use of the principle in their writings, and Arabian works from the eleventh century give a description of the "camera obscura," the forerunner

* Scientific Section, A. PH. A., Madison meeting, 1933.

of the modern projection machines. Until the year 1568, no lenses were used in these projectors; mirrors and pin-hole apertures were used with the sun as the only source of light. About that time, Daniel Barbaro used a convex spectacle-lens to increase the brilliance of the image. After this discovery, great strides were taken in the field, but the first workable magic lantern was produced by Walgensten, a Danish scientist in 1665. His machine was a crude contraption. A naked flame from a smoky oil lamp furnished the light; a single lens answered the purpose of both condenser and projection lenses, and the demonstration was in an absolutely dark room only a few feet square. The small room was necessary because the projector had to be outside the room, and its range was very short. The spectators stood inside a large camera and viewed the image exactly as it would be recorded on a modern camera plate, in most cases inverted, for the practice of inverting the slide in the machine had not then become popular.

In the early part of the 17th century, a number of scientists worked simultaneously but most credit must be given to Kepler for the development of the micro-projector. His work was chiefly with lenses, and in 1611 he published a treatise which set forth the value of using additional lenses in projection and advanced many theories which are applied to-day. While this short historical summary has been of the development of the magic lantern, it becomes also the history of the micro-projector which is simply a magic lantern with a relatively short projection objective. Its scope begins where that of the magic lantern ends and includes the very smallest of microscopic objects. One machine cannot be expected to cover the whole range, but the possibilities and value of the micro-projector to the teacher or lecturer are apparent. With a large screen image of the microscopic field, the teacher is able to show to a large group the important points of the specimen and point out peculiarities of structure and form. He can easily indicate the special points which, though less striking, are often most important. In this way, the need for individual help to those learning to use the microscope is eliminated, and more time is gained for study of the object.

Although there are many micro-projectors on the market to-day, there are several reasons why it is advantageous to build rather than to buy a machine. The first of these is the cost factor. In spite of the fact that most manufacturers have reduced their retail price recently, it is possible to build a micro-projector for about half the cost of the lowest priced instruments. Many of the parts can be made or assembled from discarded material, and the few parts that must be purchased are very reasonably priced since the cost of assembling is eliminated. Another advantage is that the machine can be constructed to meet the requirements of specific conditions under which it will be used. The commercial machines are all made to operate perfectly in certain definitely stated conditions, and if these conditions are changed, as they are almost certain to be, the efficiency of the micro-projector is reduced. In building a micro-projector the conditions become the constant factor, and construction is altered accordingly.

There are comparatively few parts needed for an efficient micro-projector, but those used must be of good quality and adapted to the type of machine that is to be built. The light must be the most brilliant possible; the condenser lens must be of clear white glass and should be corrected for chromatic and spherical aberration. The mirrors and objective lens should be as nearly perfect as can be ob-

tained. The stage for supporting the slide may be as simple or complex as desired, but, for ease of operation, a mechanical stage of some kind should be used. An efficient water cell for cooling the light rays is also necessary to prevent damage to the specimen and apparatus. These are the essential parts and, if assembled carefully, are all that are needed. These can all be modified in many ways to make operation easier and results more certain. A very important factor to be considered is the room and screen for the demonstration. The room should be absolutely dark; even a small ray of light striking the screen will lessen the brilliance of the image. The screen must be of the best, but, as most screens in common use will give satisfactory results, this subject requires no discussion. It may be stated that a pure white, entirely opaque screen has been found best.

Probably the most important part of the micro-projector is the source of light, for with a poor light the most perfect of machines cannot be satisfactory. In passing through the various units, a portion of the light is absorbed by each, with the result that less than ten per cent of the light produced ever reaches the screen. This necessitates the use of a very powerful light if the image is to be brilliant at any great distance. From early times various light sources have been used, the first being sunlight which remains the most brilliant of all. Since it is seldom convenient to use sunlight for projection, other lights were invented and developed for use in its stead. From the naked flame of the animal and vegetable oils developed the kerosene lamp with a glass chimney. With the discovery of electricity came many types of electric lights, the first of which was the arc light, and, though many types of incandescent lamps have been produced and are used to-day, it is next to sunlight, the most brilliant of all. The carbon arc lamp is the best suited for micro-projection, although recently several concentrated filament bulbs have been produced which are more convenient to operate and give good results under limited conditions. Of all the arc lamps, the one with the carbons at right angles has been found to be best for micro-projection. The reason is that the crater of the horizontal carbon produces a brilliant light in a concentrated area, which can be kept constantly in the axis of projection. This condition is very important where a variation of a fraction of an inch might throw the light completely outside the small opening of the objective. The light used in the machine about to be described, was an automatic carbon arc lamp with carbons, six to eight millimeters in diameter at right angles, and operated on a current of four to ten amperes. It was manufactured by the Bausch and Lomb Optical Co. of Rochester, N. Y., and gave splendid results on direct or alternating current.

THE RHEOSTAT.

With any arc light, a rheostat or resistance is necessary to regulate the amount of current and prevent overloading of the circuit when the carbons are brought together. This rheostat may be of the variable type, which permits adjustment of the current without interruption, or of the fixed type, which gives satisfactory results if the current is fairly constant. The amount of resistance to use is determined by the current required by the arc lamp. A constant current of the correct amperage must be supplied if a steady, brilliant light is to be expected. If possible, this unit should be purchased with the arc lamp, although a good resistance can be made from iron, German silver or nichrome wire of the correct diameter and length.

The mounting can be made on any non-inflammable non-conductor. Some provision should be made for conducting away the heat formed, such as the free circulation of air or immersion in water. The resistance for the light mentioned above was constructed of coiled nichrome wire, wound on grooved porcelain, which also aided in conducting away the heat. A fuse plug or other circuit breaker, on or near the machine, is necessary to prevent damage to the wiring system in case of accident. The fuse should be of slightly lower capacity than those of the lighting system so it will be the one to burn out as the result of an overload.

THE CONDENSING LENS.

The next unit to be considered in the construction of a micro-projector is the condensing lens. As its name suggests, the purpose of this lens is to condense or converge the rays of light to a point. This is necessary in order to concentrate as much of the light as possible on the specimen at a certain point so that most of it will enter the opening of the objective. This condensing lens may be composed of one, two or three elements. Those of one element are rarely used because of their very long focal distance. Those with three elements have proven best for micro-projection because the focal distance is convenient, and they are entirely free from chromatic aberration. The two element lens, although of slightly longer focal distance and more liable to chromatic aberration, has been used successfully in many cases. This type was used in the foregoing experiments, because it was less expensive and absorbed less light than the three-element condenser. A slight spectrum was produced but was entirely eliminated by careful adjustment of the substage mirror.

THE COOLING CELL.

Another important part of the micro-projector which should be considered with the light and condenser is the water-cooling cell. This is a necessity because a great deal of heat is produced by the arc lamp, and both the light and the heat are brought to a point by the lens and concentrated in a small area. This heat would quickly destroy any inflammable substance placed in the point of focus, which is the position of the slide to be projected. The water cell, when placed in the path of light, absorbs a large part of the heat but permits most of the visible light rays to pass through. The cell is very simple of construction, consisting essentially of a narrow glass cell with parallel sides, filled with water. It may be from one to ten centimeters thick, but more than five centimeters is rarely necessary and should not be used, since more light is absorbed by thicker layers of water. A cell one centimeter thick will absorb about seventy per cent of the heat and usually prevent serious damage when used with the ordinary small arc lamp. Good results were obtained with a cell one and a half centimeters thick, constructed of ordinary window glass mounted in a ring of tinned sheet iron and made water-proof with aquarium cement. No other substance was added to the water except a trace of copper sulphate to prevent the growth of algæ and molds.

PROJECTION.

These parts mentioned may all be considered as units of the light source for they all aid directly in producing the light and making it suitable for use in projec-

tion. The remaining parts are those for utilizing the light to project the image. The most important of these is the microscope or microscope objective which is also the projection lens. An ordinary microscope can be used and will give good results in some cases, but, for the best results, the microscope should be modified to adapt it for its position in the machine. The narrow barrel should be replaced by one of larger diameter, and such mirrors and extra lenses added as necessary for conditions under which the machine is to be used. By describing the modifications of the microscope used, these changes can be pointed out. In the first place it was found that the eyepiece of the microscope absorbed much of the light and diffused the image to such an extent that the light would not reach the screen from any great distance. The eyepiece was discarded, and it was possible to project a concentrated beam which produced a sharp image at a distance of thirty feet, but the field was small. The area was increased by using a tube of larger diameter, but best results were obtained by removing the barrel entirely and using only the objective. It was desired that the microscope be in its natural vertical position so that the stage be horizontal for showing water mounts, glycerin mounts or living specimens. This made it necessary to use a mirror below the stage to reflect the light from the arc lamp up through the slide and the objective. For this purpose the regular plane sub-stage mirror was used, and was brought into position by moving the microscope. The correct height was attained by placing the microscope on a platform. This mirror was adjusted at an angle of forty-five degrees from the horizontal so that the reflected beam would be exactly vertical. It was also placed a little nearer the light than the exact focal point so that the reflected rays would converge at the stage level rather than at the mirror. Another mirror was necessary above the objective to reflect the light beam at right angles in order that it could be focused on the screen. Because of its position and function it may be called the projection mirror, just as the last lens in a magic lantern or moving picture machine is called the projection lens. At this point the microscope could hardly be identified. The stand and base had been left intact, but the barrel had been removed, and a mirror had been mounted above the objective. This modified microscope was found to give good results at a distance of thirty feet, but the image was very large and was not brilliant, on account of the diffusion. Since the projection stand was over forty feet from the screen, experiments were necessary to find means of reducing the size of the image and thus increasing the brilliancy. After several unsuccessful attempts, it was found that a projecting lens such as those used in magic lanterns, placed immediately in front of the projection mirror, greatly reduced the size of the image and increased the brilliance. It was also found that moving the lens nearer to or farther from the projection mirror, decreased or increased the size of the image. The lens was mounted on the microscope so that it moved with the objective and was always in the same relation to it. A rack and pinion adjustment in the mounting of the lens, permitted easy adjustment of image size.

The parts mentioned are all necessary if efficient projection and ease of operation are to be obtained, and, on account of the number of times the light is reflected, all should be the best of their kind so that no more light is lost than is absolutely unavoidable. The assembling of these parts is also of prime importance. All parts must be mounted in the proper relation to the other parts, if the most good

is to be obtained from the parts selected. The machine must be entirely light-proof so that only the light which has passed through the projection microscope will reach the screen. The center of the arc must be exactly in line with the center of the condenser lens and the sub-stage mirror, which, in turn, must have its center in line with the objective opening. The first step is housing the arc lamp. Since there are a number of satisfactory methods for doing this, no discussion is necessary; a satisfactory housing can be made from sheet iron or tinned sheet iron and will give good service. The next step is to determine the optical axis and to devise a means of keeping the parts in the axis while being adjusted to their correct position. For the purpose a track of brass rods or wooden molding can be used to good advantage.

In the machine built in this experiment the lamp housing was made of tinned sheet iron. An aperture large enough to accommodate the condenser lens was provided in one end, and the light mounted inside at such a distance that the focal point was about eight inches. The water cell was mounted between the light and the condenser. This unit of arc light, condenser and water-cell was mounted on a wooden base board, large enough to allow room for mounting the microscope in front, and the resistance unit, fuse plug and switch behind, the source of light. The microscope was attached to the stand to elevate the substage mirror into the axis of projection. This was mounted on the base board, the final adjustments being made with the light burning to insure exact centering. It was placed so that the sub-stage mirror was nearer the condenser than the focal point. This position caused the light to come to a point just at the stage and obviated the use of a sub-stage condenser. A support for the projection mirror and projection lens was made to bolt to the frame of the microscope. The mirror was attached to the support by a ball and socket joint, and the lens by a rack and pinion adjustment. A vertical shield of wood was placed in front of the microscope to prevent any stray light from reaching the screen, and the entire machine was painted black to prevent reflection. When completed the machine was small and compact enough to be easily carried, and was simple to operate, it being only necessary to connect the cord to a light socket, start the arc lamp and place a slide on the stage. Focusing was accomplished by the regular coarse adjustment of the microscope. No adjustment of the projection lens was necessary except to increase or decrease the size of the screen image.

In a trial demonstration slides of plant sections and microscopic animals were projected from a distance of fifty feet. The images were clear and brilliant and showed plainly the structure and points of interest. Its practicability has not yet been completely determined but indications are that it will be an aid in teaching all branches of microscopy, microbiology and histology.

THE MICROSCOPICAL LABORATORIES,
PITTSBURGH COLLEGE OF PHARMACY.

"The Water of Crystallization of Quinine Sulphate," by H. Wales.—Scientific Section.

Drying a product in an oven shows the amount of water present but does not prove that it is present as a hydrate. Vapor pressure measurements on quinine sulphate show that it crystallizes from water at room temperature as the octohydrate. Upon drying this passes directly to a dihydrate. No evidence of the existence of a heptahydrate was obtained.

PHYSICS IN PHARMACY.

BY JOHN URI LLOYD, WOLFGANG OSTWALD AND HANS ERBRING.

(*Concluded from page 331, April issue.*)

II. The *Second Divisional Effect* (cf. *Fig. 16, II*) is characterized, first, by a striking constancy of the height of rise, resp., the difference of level. The system is apparently in hydrostatic equilibrium. Nevertheless, considerable changes are taking place in it, as shown in *B*, *C* and *D*. The hydrostatically repressed salt solution moves upward again, as is seen by the migration of the zone of diffusion. (Cf. *B* and *C*.) Simultaneously with this return motion an increasing difference of weight must arise again (cf. *Fig. 16, II-B*).

No doubt *diffusion* is responsible for this movement of the salt in opposite direction, which becomes apparent to the eye by the formation of a gradient of concentration. The zone between colored salt solution and water is no longer relatively sharp, but spreads out. The transition becomes the more gradual the longer the duration of this divisional effect.

Now the fact is very striking that difference of level is not noticeably changed, in spite of the diffusion and in spite of the increase of weight of the salt liquid as a consequence of this diffusion. If hydrostatics alone were responsible, this fact would be incomprehensible. Hence we must look for forces which eventually act independently in opposite direction to hydrostatics, and which therefore may be able to compensate the hydrostatic pressure in the second divisional effect.

In this connection we may think first of *kinetic* factors. As stated before, the equalization of hydrostatic pressure in filter paper consumes much time. We may imagine that in the 2nd divisional effect the process of diffusion takes place faster than the hydrostatic equalization. Retardation of the hydrodynamic velocity of water by the capillary spaces of the filter paper is probably much greater (in conformity with Hagen-Poiseuille's law) than the retardation of diffusion by capillary walls. Therefore the constancy of the difference of level, notwithstanding the formation of a new hydrostatic disequilibrium by diffusion, could be explained by the great differences in diffusion velocity, and hydrodynamic velocity of the water. In this sense, the constancy of the difference of level would be merely a phenomenon of retardation, as it were, a "hydrostatic supersaturation."

However, the part played by osmotic water attraction discussed before, cannot be neglected. If the diffusing molecules in a capillary system are able to attract solvent in the manner described, they must also carry this osmotically bound water along with them in diffusion. Such carrying of osmotically attracted water would indeed be able to counteract the hydrostatic equalization of level. The water carried osmotically from left to right would therefore be approximately equal to the water which would be carried hydrostatically from right to left through increase of weight of the salt tube. We have two opposite water movements: Osmotic carriage of water from left to right, and hydrostatic movement of water from right to left, which about compensate each other in the second divisional effect; the water is thus virtually "immobilized." An osmotic carriage of water would then furnish the theoretically required pressure opposite the hydrostatic pressure, and at the

same time would explain the constancy of the difference of level during the 2nd divisional effect notwithstanding diffusion progressing.

III. The *Third Divisional Effect* is characterized by slow disappearance of the difference of level, *i. e.*, by a *reversion* of the direction of liquid movement, while the zone of diffusion migrates into the left tube and there is simultaneous decrease of the difference of weights of the two liquid cylinders in the siphon tubes (cf. *Fig. 5-III*). In this part of the process, diffusion is the sole driving force. Through diffusion the salt is transferred into the water vessel, diminishing thereby, visibly, more and more the differences of weight, resp., the hydrostatic difference of pressure which still existed in the 2nd part of the process.

With progressive diffusion a moment will be reached where the difference of weights between the 2 liquid cylinders in the siphon is zero, and then will attain a negative value. The longer water cylinder, containing but little salt, will become heavier than the short salt cylinder, which, however, is richer in salt. Thus a decrease of the difference of level and gradual equalization can take place hydrostatically.

However, it is very striking to note how exceedingly slowly and gradually this hydrostatic equalization takes place. Even after weeks of experimentation, in the course of which large quantities of dissolved salt could be demonstrated in the water vessel, complete equalization of level had never been reached. This retardation again may be caused by either kinetic factors (hydrostatics in arrear toward diffusion), or the capillary-osmotic fixation of water in the strip of filter paper; the function of this fixation we were able to recognize very distinctly in the 2nd divisional effect. When hydrostatic current and diffusion have motions in the same direction, in this case also will water be retained or osmotically immobilized in the filter paper in conformity with the ideas developed before. Similarly, water contained in salt-free filter paper shows, as is well known, depression of freezing point, compared with water in bulk.

REVIEW.

The theory of the Effect may be briefly outlined in the following summary: We accept three kinds of forces to share in the phenomenon: Primary hydrostatic forces, secondary hydrostatic forces in consequence of diffusion, and capillary-osmotic forces, which may act in opposition to hydrostatic forces. The first main rise is principally a hydrostatic effect (Capillary siphon). The hydrostatic and osmotic effects of diffusion have only a secondary share (Diffusion siphon effect and capillary osmosis).

The Second Division, characterized by the constancy of the difference of level in spite of pronounced diffusion, leads us to assume a manifestation of capillary osmosis. The hydrostatic excess pressure caused by diffusion, is not visibly balanced because the salt molecules contained in the capillary spaces osmotically attract and immobilize water molecules. In the Second Division, this capillary-osmotic attraction of water compensates the hydrostatic excess pressure caused by diffusion.

In the Third Division, salt gradually passes over into the (longer) water tube of the siphon, rendering this liquid heavier until the sign of the hydrostatic difference of pressure reverses, and the difference of level again begins to disappear. The exceeding slowness with which this equalization takes place, notwithstanding a

strong passage of salt into the water tube, is again ascribed to capillary-osmotic immobilization of water in the filter paper.

Reviewing again the experimental details recorded in the second part of this work, from the point of view of the theory stated, we find them in agreement with theory. The greater length of the capillary connecting tube favors the siphon effect (on account of the longer, heavier cylinder of salt solution). In addition, the capillary-osmotic forces have a more telling effect in a longer horizontal connecting tube. The influence of the nature of the filter paper, especially its content of capillary spaces upon tangential "irrigation" of the paper, seems to argue with especial force in favor of not only hydrostatic but also capillary-osmotic forces in producing the Effect. For aside from the velocity of flow, a change in the cross section of a purely hydrostatic siphon does not change in the least a purely hydrostatic effect. Our experiments with filter paper whose pores are clogged by formation of precipitates, we interpret in the same sense, also in reference to the researches of F. E. Bartell, E. Manegold and others, on the Osmosis of "permeable cells." The fact that electrolytes as well as non-electrolytes show the Effect which becomes the more pronounced the higher the concentration of the salt solution agrees with all proposed divisional explanations.

The insignificant positive influence of temperature is somewhat surprising. It is true that the densities of salt solution and water are influenced in the same direction by increase of temperature, while hydrostatically only the *difference* in density becomes active. On the other hand, both fluidity of water and the solution, as well as diffusion velocity, are materially increased with rising temperature; not so, however, the osmotic pressure which, as we know, increases by only 1/273 per degree.

Simple as the Effect appears to be, its dynamics is very involved, as the preceding Analysis demonstrates. For the further investigation of these peculiar liquid movements in capillary systems, such experimental arrangements particularly suggest themselves, in which the hydrostatic effects are eliminated as much as possible. For example, a horizontally placed and linearly extended capillary system of the same order might be such an arrangement. Although such an experiment seems very simple, it is by no means carried out as easily, as experiments of our own in this respect have already shown. Influences of gravity are very difficult to eliminate, even with horizontal arrangement, and an exact leveling in the case before us is not simple. We shall report on experiments of this kind in a later communication.

SUMMARY.

1. When two cylinders which are filled, resp., with concentrated salt solution and water, are connected by a strip of filter paper and the liquid is protected against evaporation, there will be a transfer of water into the salt solution. This experiment described by the senior author about 35 years ago, was again studied in detail, also quantitatively.

2. The Effect was easily reproduced. There are increases of level, *e. g.*, up to about 12 mm., and total differences of level to about 28 mm. It is further noted that within long periods of time (8 days or more), a maximum effect is reached; thereafter, the difference of level again decreases.

3. From a great number of numerical data, the following are presented:

(*a*) The Effect strongly increases with increasing length of the capillary connecting piece, *viz.*, the strip of paper.

(*b*) Previously wetting the paper with the solution likewise causes a strong increase of the Effect.

(*c*) It is not the transversal fineness of the pores of the paper, but rather the longitudinal capillary, *i. e.*, highly developed fibrillary structure of the paper which gives the maximum effects; soft, absorbent paper acts better than hardened, dense paper. Improvement is also attained by reducing the diameters of the capillary tubes by partially filling the spaces with highly dispersed precipitates, *e. g.*, $BaSO_4$.

(*d*) The Effect is obtained not only with electrolytes ($FeCl_3$, $AlCl_3$, $BaCl_2$, KCl), but also with non-electrolytes (Sugar, Urea).

(*e*) The Effect increases parallel with concentration; initially it increases with good approximation linearly with concentration. In the case of Urea, the concentration curves of increases of level are curved faintly convex toward the concentration axis, which is in accord with the concentration curves of osmotic pressure of concentrated molecularly dispersed and colloidal solutions.

(*f*) The Effect has a small positive temperature coefficient.

4. The problem as to the nature of the driving forces in the observed phenomenon is investigated.

It is shown that there are at least three sources of energy sharing in the production of the effect:

(1) Hydrostatic forces in capillaries; *Capillary siphon effect.*

(2) Diffusion in capillaries: *Diffusion-siphon effect.*

(3) Osmotic attraction of liquids in capillary systems: *Capillary Osmosis.*

All three forces come into play:

At the beginning of the phenomenon, the *hydrostatic effect* is dominant, then appear *diffusion* and *capillary osmosis*, and toward the end, again *hydrostatics* terminates the process.

5. Brief reference is made to the significance of the Effect in geological movements of liquids (subterranean water courses), the theory of swelling, and in biological movements of liquids.

ABSTRACT OF A PAPER BEFORE SCIENTIFIC SECTION, A. PH. A.

"Chemical Examination of Some Urographic Preparations," by George W. Collins.

Several years ago, Rowntree and his associates demonstrated that following the injection of sodium iodide solution introduced through the ureter, radiographic visualization of the pelvis of the kidney, the ureter and the bladder, pyelograms could be made. Subsequently, many iodine compounds, both simple and complex have been prepared and tested for their roentgenologic usefulness. The author reports the findings of chemical examinations of two different specimens of Iopax, also the examination of a third specimen of the product by a disinterested consulting laboratory. Several points of interest are brought forth in the investigation, including petrographic data confirming the chemical findings. A report is made of an examination of another urographic preparation known as Skiodan. Chemically, these products differ markedly. Iopax is the sodium salt of an acid derivative of an iodized oxo-aminopyridine, containing 42 per cent iodine in organic combination; while Skiodan is the sodium salt of mono-iodomethane sulphonic acid and contains 52 per cent organically combined iodine. The evaluation is made of tests and standards for the identity, purity and assay of these two preparations. In addition, there is a résumé of three other iodized products recently introduced and used in pyelography.

BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Compiled by A. G. DuMez, Reporter on the Progress of Pharmacy.

All articles in these lists will be presented in abstract form in the bound volumes of the Year Book, which is issued annually. Those desiring abstracts immediately can obtain them for a fee of one dollar each by communicating with A. G. DuMez, University of Maryland, School of Pharmacy, N. W. cor. Lombard and Greene Sts., Baltimore, Maryland.

APPARATUS AND MANIPULATIONS.

Andrews, Marvin J.
Determination of the reasonable, or permissible, margin of error in dispensing. II. Ointments
Jour. A. Ph. A., 23 (1934), 350

Brown, H. Treves
Hand homogenizing machines
Pharm. J., 132 (1934), 307, 337

Defrance, E.
Testing of glass containers for medicines
J. pharm. Belg., 16 (1934), 267

Evans, Theodore W.
Extraction by immiscible solvents
Ind. Eng. Chem., 26 (1934), 439

PHARMACOPIŒAS AND FORMULARIES.

Casparis, P.
Review of the Swiss Pharmacopœia V *(Cont.)*
Schweiz. Apoth.-Ztg., 72 (1934), 41, 185

Flück, H.
Review of the Swiss Pharmacopœia V
Schweiz. Apoth.-Ztg., 72 (1934), 57

Schou, Svend Aage
Galenical preparations of the Danish Pharmacopœia, 1933
Arch. Pharm. og Chem., 41 (1934), 201, 229

PHARMACEUTICAL PREPARATIONS.

Cain, R. A., and Langenhan, H. A.
Liquor Calcis Sulphuratæ
Jour. A. Ph. A., 23 (1934), 344

Feist, K.
Corrective for the taste of potassium iodide mixtures
Apoth.-Ztg., 49 (1934), 437

Gstirner, F.
Preparation of tinctures
Pharm. Ztg., 79 (1934), 310, 328

Kornilov, N. M.
Tincture of iodine
Bull. Nauch. Issledov. Khim. Farm. Inst. (1931), 221–223; through *J. Soc. Chem. Ind.*, 53 (1934), 300B

Kuhn, A., and Schäfer, G.
Contribution to the knowledge of homeopathic preparations
Pharm. Ztg., 79 (1934), 373

Ponte, D.
Green coloration developed by an injectable camphorated oil
Boll. chim.-farm. (1933), 72, 953–955; through *J. Soc. Chem. Ind.*, 53 (1934), 300B

Regnier, Jean, and David, Robert
Influence of hydrogen-ion concentration on stability of cocaine hydrochloride solutions during sterilization
Bull. sci. pharmacol., 40 (1933), 650

Rothenkirchen, Otto
Ammonia liniment, D. A. B. 6
Pharm. Ztg., 79 (1934), 286

Stainier, Carl, and Massart, Jean
Pharmacy of carbon tetrachloride
J. pharm. Belg., 16 (1934), 289

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS.

Anon.
Derris as an insecticide
Pharm. J., 132 (1934), 311

Anderson, Robert C., and Chen, K. K.
The hyperglycemic action of forty amines
Jour. A. Ph. A., 23 (1934), 290

Beaune, A., and Balaceanu, V.
Action of cardiotonics on the isolated ventricle of the snail
Bull. sci. pharmacol., 50 (1933), 658

Brandes, W. W.
Nickel carbonyl poisoning
J. A. M. A., 102 (1934), 1204

Frumess, Gerald M.
Allergic reaction to dinitrophenol
J. A. M. A., 102 (1934), 1219

Hoffman, Arthur M., Butt, E. M., and Hickey, N. G.
Neutropenia following amidopyrine
J. A. M. A., 102 (1934), 1213

Kindel, Daniel J., and Costello, Maurice J.
Staphylococcus toxoid in the treatment of pustular dermatoses
J. A. M. A., 102 (1934), 1287

Lumiere, Auguste
Use of thioderivatives of antimony in therapy
Bull. sci. pharmacol., 41 (1934), 129
More, W.
Poisoning by paraldehyde
Brit. Med. J., No. 3818 (1934), 428
Pfister, F. F.
Rash from vitamin preparations
J. A. M. A., 102 (1934), 533
Poole, Fenn E., and Haining, Robert B.
Sudden death from dinitrophenol poisoning
J. A. M. A., 102 (1934), 1141
Randall, Clyde L.
Severe granulopenia following the use of barbiturates and amidopyrine
J. A. M. A., 102 (1934), 1137
Raymond-Hamet
Apropos the physiologic assay of digitalis
Bull. sci. pharmacol., 41 (1934), 161
Rosenthal, Sanford M.
An antidote for acute mercury poisoning
J. A. M. A., 102 (1934), 1273
Rozier and Jullien
Therapeutic action of sodium antimony-thiopropanol sulphonate in canine leishmanioses
Bull. sci. pharmacol., 41 (1934), 149
Tainter, M. L., and Wood, D. A.
A case of fatal dinitrophenol poisoning
J. A. M. A., 102 (1934), 1147
Todd, J. P., and Sillar, Isabella M.
Effect of the chlorides of a few well-known bases on bacterial growth
Chem. & Drug., 120 (1934), 399

BOTANY AND PHARMACOGNOSY.

Berger, Franz
New method for standardizing pollen for use in the preparation of pollen extracts
Pharm. Zentralh., 75 (1934), 239
Gabel, L. F.
Comparison of Karaya gum and tragacanth
Jour. A. Ph. A., 23 (1934), 341
Kondo, H., and Ikawa, S.
Investigation of the constituents of "Senso." Part III
J. Pharm. Soc. Japan, No. 624 (1934), 22
LaWall, Charles H., and Harrison, Jos. W. E.
The arsenic content of chondrus
Jour. A. Ph. A., 23 (1934), 308
Mollett, Charles E., and Christensen, B. V.
Coptis occidentalis, Salisbury (Fam. Ranunculaceæ)
Jour. A. Ph. A., 23 (1934), 310
Richards, L. W., and Lynn, E. V.
An examination of Ceanothus velutinus
Jour. A. Ph. A., 23 (1934), 332

ALKALOIDS AND GLUCOSIDES.

DeKay, H. G., and Jordan, C. B.
Assay of hyoscyamus
Jour. A. Ph. A., 23 (1934), 316
Ekkert, Lad
Contribution to the reactions of epinephrine and ephedrine
Pharm. Zentralh., 75 (1934), 208
Ekkert, Lad
Reactions of betaine
Pharm. Zentralh., 75 (1934), 209
Ekkert, Lad
Contribution to the reactions of digitoxin, digitalin and digitonin
Pharm. Zentralh., 75 (1934), 228
Goris, A., and Chalmeta, C.
Observations on the determination of ecgonine
Bull. sci. pharmacol., 40 (1933), 641
Kolle, Finn, and Gloppe, Kris. E.
Alkaloids of Narcissus poeticus L.
Pharm. Zentralh., 75 (1934), 237
Kolthoff, I. M., and Lingane, J. J.
The determination of strychnine and brucine as hydroferrocyanides and their separation by means of ferrocyanide
Jour. A. Ph. A., 23 (1934), 302
Pedersen, Holger Leth
Electrometric titration of solutions of quinine salts
Dansk Tids. Farm., 8 (1934), 17
Rusting, N.
Determination of morphine in opium
Pharm. Weekbl., 71 (1934), 333
Wagenaar, M.
Contribution to the microchemistry of quinine carbonate
Pharm. Weekbl., 71 (1934), 316

OILS, FATS AND WAXES.

Lindholm, H. R. V.
Chemical and physical determination of vitamin A in codliver oil
Dansk. Tids. Farm., 8 (1934), 73

ESSENTIAL OILS AND RELATED PRODUCTS.

Gros, R., and Pichon, G.
Determination of allylmustard oil in mustard flour
J. pharm. chim., 19 (1934), 249
Redgrove, H. Stanley
Perfumes used in fumigating
Pharm. J., 132 (1934), 363
Zeligson, N. E., and Boldyreva, E. S.
Determination of vanillin

Bull. Nauch. Issledov. Khim. Farm. Inst. (1931), 274–277; through *J. Soc. Chem. Ind.*, 53 (1934), 300B

ANALYTICAL METHODS AND RESULTS.

Beukema-Goudsmit, M.
Contribution to the quantitative determination of phenol, salicylic acid and cresol
Pharm. Weekbl., 71 (1934), 380

Dumont, P., and Declerck, A.
Examination of ointments with a lard base to detect substitution
J. pharm. Belg., 16 (1934), 227, 243

Eury, J.
Volumetric determination of formaldehyde in the presence of sulphites
J. pharm. chim., 19 (1934), 261

Fäufel, K., and Thaler
Detection of glycerin in medicinal preparations and cosmetics
Pharm. Ztg., 79 (1934), 341

Gillot, P., *et al.*
Titration of tannins with chromic mixture
Bull. sci. pharmacol., 41 (1934), 137

Horkheimer, Ph.
Assay of nitroglycerin solutions
Pharm. Ztg., 79 (1934), 353

Kämpf, Paul
Studies on the standardization and adulteration of drugs by means of capillary analysis and the quartz lamp
Pharm. Acta Helv., 8 (1933), 214

Masagetov, P. S.
Determination of santonin in plant materials
Khim-Farm. Prom. (1932), 68–71; through *J. Soc. Chem. Ind.*, 53 (1934), 301B

Miller, Jul. Aug.
New constants for drugs and galenicals. III. Copper numbers of some obsolete drugs
Pharm. Zentralh., 75 (1934), 205

Miller, Jul. Aug.
New constant for drugs and galenicals, the copper number
Pharm. Zentralh., 75 (1934), 81

Patzsch, H.
Quantitative methods for the determination of animal lipoids
Pharm. Zentralh., 75 (1934), 98

Penau, H., and Audic, R.
Assay of soluble enzymes of pharmaceutical importance
J. pharm. chim., 19 (1934), 329

Schorn, E. J., and Brown, William S.
The use of adsorption indicators in argentiometric assays
Pharm. J., 132 (1934), 361

Schorn, E. J., and Baird, Janet Y.
Argentiometric assay of ammonium chloride, B. P., 1932
Pharm. J., 132 (1934), 361

Straub, Johann, and Mihalovitis, Eugen
Determination of veronal in urine
Pharm. Zentralh., 75 (1934), 226

Tschentke, H. L.
Chemical examination of tri-chloroethylene for anesthesia
Ind. Eng. Chem., Analyt. Edit., 6 (1934), 21

Vaille, Charles
Reactions for differentiating argyrol, collargol, electrargol and protargol
J. pharm. chim., 19 (1934), 256

Willson, F. E.
Pancreatin and its assay
JOUR. A. PH. A., 23 (1934), 295

ORGANIC CHEMICALS.

Cornish, R. E., *et al.*
Purification of vitamins
Ind. Eng. Chem., 26 (1934), 397

Braker, W., and Christiansen, W. G.
Di-β-bromallylamino-ethyl-*p*-amino benzoate
JOUR. A. PH. A., 23 (1934), 322

Spur, B.
New results of vitamin research
Dansk Tids. Farm., 8 (1934), 101

ABSTRACTS OF PAPERS BEFORE SCIENTIFIC SECTION, A. PH. A.

"The Metabolism of Dulcitol and Dulcitan," C. Jelleff Carr and John C. Krantz, Jr.

This investigation has for its purpose the determination of the fate of Dulcitol and its first anhydride Dulcitan in the white rat. Liver-glycogen and muscle-glycogen and respiratory data are included.

"The Chemical Assay of Adonis, Convallaria and Apocynum," by Margarethe Oakley, James C. Munch, C. Jelleff Carr and John C. Krantz, Jr.

An effort has been made to apply the Knudson-Dresbach chemical method for the determination of the digitalis glucosides to the determination of the glucosides in Adonis, Convallaria and Apocynum.

DETERMINATION OF THE REASONABLE OR PERMISSIBLE MARGIN OF ERROR IN DISPENSING. II. OINTMENTS.

BY MARVIN J. ANDREWS.

(*Concluded from page 356, April* JOURNAL.)

VARIATION IN CAPACITY OF OINTMENT JARS PURCHASED FROM MANUFACTURERS.

A second series of tests was carried out to determine to what extent jars of the same brand vary in capacity. With this object in view, jars labeled 1/2-ounce, 1-ounce and 2-ounce were purchased from four of the leading manufacturers of ointment containers, and these were subjected to the same tests in each case.

To obtain the desired data, ten jars were selected at random out of each box of twelve 1/2-, 1- and 2-ounce jars. Each of these jars was filled by 10 different students to obtain a fair average for the capacity of the jar. Petrolatum was selected as the base for filling, as it is the lightest of any of the four bases used in the tests, and also because it is the easiest to handle. It was poured in the melted condition between 43° and 45° C. to insure the absence of air-pockets which are always formed when the base is packed in the solid condition. The excess was removed by running the edge of a spatula over the top of the jar and wiping off any material adhering to the sides. The jars were not weighed until cool.

Each of the four manufacturers whose jars were used in these tests was requested to state what standard was used in determining capacity. Three replies were received. Manufacturer B stated that his standard for capacity was based on the apothecaries liquid measure of 480 minims to the fluidounce. It is assumed that the 480 minims refer to distilled water the equivalent of which is 454.6 grains by weight at 25° C. Manufacturer C stated that he arrived at his standard for capacity by using the apothecary ounce of 480 grains of petrolatum. It is stated further that "a one-ounce rated container will have a fluid capacity of 1.25 ounces" in terms of this standard. Manufacturer D stated his standard for capacity was based on the apothecaries ounce of 480 grains of petrolatum.

The results of the second series of tests are presented in Table VIII which follows on page 422.

The greatest variation in capacity of the 1/2-ounce jars of any one make was observed in those obtained from Manufacturer D. Jars 3 and 8 of this manufacturer showed a difference of 19 grains, and the S. D. was 6.55 grains for the ten jars. The next greatest variation in capacity was found in the jars obtained from Manufacturer C. Jars 7 and 10 of this manufacturer showed a difference of 15 grains, and the S. D. was 4.79 grains for the ten jars.

In the case of the one-ounce jars, the greatest variation in capacity was observed in those obtained from Manufacturer A. Jars 2 and 3 of this manufacturer showed a difference of 19.6 grains, and the S. D. was 5.96 grains for the ten jars.

In the case of the two-ounce jars, the greatest variation in capacity was found in those obtained from Manufacturer B. Jars 2 and 5 of this manufacturer showed a difference of 30.4 grains, and the S. D. was 10.25 grains for the ten jars.

It is an accepted fact that glass containers cannot be made of exactly the same capacity no matter what method of manufacture is followed or how carefully the work is done. The limits observed for variations in capacity, however, were surprisingly narrow, being less than 2 per cent for jars made by any one of the different manufacturers, except in the case of the half-ounce jars made by Manufacturer D.

TABLE VIII.—CAPACITY OF OINTMENT JARS PURCHASED FROM MANUFACTURERS.

Manufacturer.	Stated Capacity of Jar.	Average Capacity Found for Petrolatum U. S. P. in Grams.	Average Capacity in Grains Found by 10 Students. Jar 1.	Jar 2.	Jar 3.	Jar 4.	Jar 5.	Jar 6.	Jar 7.	Jar 8.	Jar 9.	Jar 10.	S. D. in Grains.	Percentage Deviation.
A	½-ounce	201.4	196.7	204.2	206.5	197.5	198.7	205.7	195.4	202.8	204.8	201.9	3.82	1.89
B	½-ounce	199.2	204.2	197.3	201.6	195.7	201.6	196.7	197.4	195.8	204.6	196.8	3.31	1.66
C	½-ounce	258.6	260.2	252.8	260.4	257.0	255.7	266.0	267.4	258.1	255.4	252.5	4.79	1.85
D	½-ounce	240.8	241.4	249.9	250.3	233.8	243.4	248.3	239.2	231.0	235.9	236.2	6.55	2.72
A	1-ounce	408.6	404.9	398.1	417.7	408.3	411.8	408.4	399.2	412.4	414.4	410.5	5.96	1.45
B	1-ounce	423.7	425.6	427.6	424.3	419.4	426.3	424.7	429.1	418.5	424.2	417.4	3.76	0.88
C	1-ounce	447.3	445.5	445.7	448.0	445.9	447.5	445.7	453.5	441.9	453.5	445.5	3.39	0.76
D	1-ounce	478.6	480.2	478.2	482.4	477.2	477.9	477.8	478.7	479.5	477.0	476.7	1.64	0.34
A	2-ounce	805.2	801.7	813.3	794.1	806.3	795.8	809.5	805.8	800.8	812.7	811.7	6.53	0.82
B	2-ounce	748.7	753.7	761.6	757.1	741.7	731.2	731.2	758.9	748.0	753.6	749.5	10.25	1.37
C	2-ounce	937.7	937.6	933.9	942.5	946.7	925.7	932.1	936.9	953.8	928.9	939.1	8.26	0.88
D	2-ounce	982.5	981.0	982.5	989.6	987.2	990.7	979.7	980.3	980.8	983.9	969.5	5.73	0.58

TABLE IX.—CAPACITY OF OINTMENT JARS PURCHASED IN RETAIL PHARMACIES.

Stated Capacity of Jar.	Average Capacity in Grains of Petrolatum Found by 3 Students for Store Number. 1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Av. Capacity in Grains for the 10 Stores.	S. D. in Grains.	Percentage Deviation.
½-ounce	253	259	241	246	246	224	199	203	212	229	231.2	20.09	8.68
1-ounce	445	446	533	480	459	483	418	410	494	525	469.3	39.31	8.38
2-ounce	947	929	960	810	961	968	799	811	810	841	883.6	70.78	8.01

TABLE X.—PERCENTAGE DEVIATION BASED ON AN OUNCE OF 480 GRAINS OF PETROLATUM.

Stated Capacity of Jar.	Total Number Stores.	Percentage Deviation from 480 Grains. 5% or Less.	From 5% Plus to 10%.	From 10% Plus to 15%.	From 15% Plus to 20%.
½-ounce	10	40%	30%	10%	20%
1-ounce	10	40%	30%	30%	..
2-ounce	10	50%	10%	10%	30%

If, however, jars made by different manufacturers are compared, the variation is so great that reasonable limits are exceeded in most cases. For instance, if a comparison is made between jar 7 of Manufacturer A and jar 7 of Manufacturer C, a difference of 72 grains will be observed for the so-called $^1/_2$-ounce jar. In the case of the one-ounce jars, there was found to be a difference in capacity of 84.3 grains between jar 2 of Manufacturer A and jar 3 of Manufacturer D. With respect to the two-ounce jars, there was found to be a difference in capacity of 259.5 grains between jar 5 of Manufacturer B and jar 5 of Manufacturer D. The exceedingly wide variation observed for the capacities of these jars is no doubt due mainly to the difference in the standards used by the manufacturers for determining capacity as already pointed out. The remedy for this condition is the adoption of a uniform set of standards for use by all manufacturers.

VARIATION IN CAPACITY OF OINTMENT JARS PURCHASED FROM RETAIL PHARMACIES.

A third series of tests was carried out to determine to what extent ointment jars used in retail pharmacies in the City of Baltimore varied in capacity. With this object in view $^1/_2$-ounce, 1-ounce and 2-ounce jars were purchased from two professional pharmacies, two downtown independent pharmacies, three chain stores and three neighborhood pharmacies, and these were tested for capacity as described under the second series of tests, except that the ten jars of each size were each filled by three different students to obtain a fair average for the capacity of the jar instead of ten students as in the preceding tests. Petrolatum was used as the base for filling. It was poured in the melted condition between 43° and 45° C. so as to eliminate any air-pockets that might be formed in packing the solid base. The excess was removed by running the edge of a spatula over the top of the jar and wiping off any material adhering to the sides. The jars were not weighed until cool.

The results of the third series of tests are presented in Table IX, page 422.

On comparing the results of the three series of tests, it will be observed that the standard deviation for the $^1/_2$-, 1- and 2-ounce jars is much higher than that of Series one and two. In Series two, jars purchased from manufacturers, and in Series three, jars purchased from retail pharmacies, the standard deviation found for the $^1/_2$-ounce drug store jars was about three times that of the greatest deviation observed for jars obtained directly from the manufacturer. The standard deviations in the case of the one- and two-ounce jars are about 7 times as great as those of the highest standard deviation observed in the second series of tests.

The greatest difference in capacity of any of the one-half-ounce ointment jars purchased from drug stores was 60 grains, for the one-ounce jars 123 grains, for the two-ounce jars, 169 grains.

For the purpose of making it possible to more readily compare these results with similar data that have been published, but which have not been expressed in terms of the standard deviation, the per cent of deviation from the theoretical, 480 grains to the ounce, has been calculated and is given in Table X, page 422. It will be observed that the margin of error calculated on this basis is 15 per cent for the one-ounce jars and 20 per cent for the one-half and two-ounce jars obtained from the ten stores in Baltimore.

CONCLUSIONS.

1. Petrolatum was the lightest of the four bases studied, followed in order by a 50 per cent lanolin and petrolatum mixture, lanolin and benzoinated lard when packed as received.

2. The frequency and magnitude of error are greater in cases where the base is packed in the solid state, than in those where the filling is accomplished by melting and pouring, except for benzoinated lard.

3. The capacity of jars by weight is decreased by triturating the ointment base on a slab previous to packing in the solid state.

4. The capacity of jars by weight may be decreased or increased by the incorporation of a liquid or a solid with the base, depending on the nature of the liquid or solid and other factors.

5. The percentage of error found was in inverse proportion to the size of the jar.

6. Jars of a designated size made by a single manufacturer do not vary in capacity beyond reasonable limits. There was observed, however, a great variation in the capacity of jars of a designated size made by different manufacturers. The latter variation is due largely to the use of different standards by the manufacturers for fixing capacity. To overcome this condition it is suggested that uniform standards for fixing standards be adopted by the manufacturers, and that the material taken as the basis for formulating these standards be petrolatum, because of its comparatively low specific gravity and uniformity with respect to other physical properties.

7. The results of the tests show that it is impossible for a glass manufacturer to prepare ointment jars which will hold the same quantities by weight of the different ointments dispensed on physicians' prescriptions. It is believed, however, that it is possible for them to manufacture ointment jars which will hold within reasonable limits definite quantities of petrolatum or other base selected as a standard. The pharmacist will then be able to dispense the full quantity of an ointment with a low specific gravity. In the case of ointments with a high specific gravity, the filling of the jar may be done in such a manner as to leave a concave surface, thereby preventing the ointment from coming in contact with the top of the jar, and also satisfying the patient as to the fullness of the jar. In the case of very heavy ointments, such as mercurial ointments, it will be necessary to weigh off the quantity prescribed and to dispense it in a jar of the size which it will come nearest to filling.

8. With regard to the margin of error which may reasonably be expected in dispensing where jars of the same manufacture are used, our observations point to a figure which at the outside is twice the standard deviation, or 25 per cent, for $^1/_2$- and 1-ounce jars; and twice the standard deviation, or 18 per cent, for 2-ounce jars.

(*To be continued.*)

"A Note on the Arsenic Determination for Reduced Iron," by Margarethe Oakley and John C. Krantz, Jr.—Abstract of Paper, Scientific Section, A. PH. A.

A simplified method of treatment for the preparation of ferrous arsenide in reduced iron for the modified Gutzeit test has been devised.

DENTAL DRUGS AND PREPARATIONS—ACCEPTED AND NON-ACCEPTED.*

BY GEORGE C. SCHICKS.[1]

The pharmacist has a definite responsibility when creating a demand for his professional service among men of the dental profession.

It may be said, without comment, that the pharmacist's first responsibility should be scientific accuracy in compounding prescriptions. So closely correlated with this that it can be considered as part of the same responsibility should be the purity and quality of the drugs used.

In order to exercise his professional skill, the pharmacist must create a demand for his services. Emphasis must be placed—not on the merchandising of packaged products but on the creation of a demand for official products. He must fall in line with the campaigners for dental drugs and preparations official in the U. S. P. and N. F. That campaign is of sufficient importance to warrant having a paper devoted in its entirety to that subject, and does not come within the scope of this paper.

Closely related to the professional integrity which must accompany the pharmacist's scientific skill is his responsibility regarding the sale of packaged products.

It has been said that there are very few exceptions to the rule that every patented or proprietary preparation is a modification of drugs and preparations official in the U. S. P. and N. F. This statement should offer a strong argument for pharmacists urging dentists to use official drugs. The prescribing of official drugs by the dentist not only permits the pharmacist to engage in the profession for which he was trained but also allows the dentist individuality in writing his prescriptions. However, national advertising by manufacturers of packaged products has made the selection, sale and recommendation of such products an important problem to the pharmacist. With such a statement in mind let us consider briefly the case of the patent drug manufacturer.

I should like to preface my remarks with the statement that I am not waging a campaign against the honest manufacturer of a non-secret preparation with true claims as to its therapeutic action. I mean to strike only at the manufacturer of secret remedies and medications with false claims.

Before proceeding I should like to make a few simple distinctions between the terms "patent," "secret," "nostrum" and "proprietary" remedies.

A "patented" medicine in the legal sense is a medicine whose composition or method of making or both have been patented in the United States Patent office or the office of a foreign country. Strictly speaking, a "patented" medicine is not a secret, because its composition must appear in the patent specifications and after seventeen years, when the patent expires, it becomes public property. A "patent" medicine—patent without the "ed" is generally considered as any medicine of secret composi-

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* By the American Dental Association.

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tion which is advertised directly to the public usually for self-medication. A "nostrum" is any patented or secret remedy. A "proprietary" remedy, according to the Council on Dental Therapeutics of the American Dental Association, is any chemical, drug or similar preparation used in the treatment of disease if such is protected against free competition as to name, product, composition or process of manufacture.

If the manufacturer of an article wishes to mark it with a distinctive device or brand, if he has that device trade-marked he is protected against anyone using that trade-mark without his permission so long as he makes general use of the trade-mark himself.

A common interpretation of the terms "patent" and "proprietary" is summed up in the statement, "all nostrums advertised and sold directly to the public are referred to as 'patent medicines;' those advertised directly only to physicians and dentists are spoken of as 'proprietaries.'"

A pharmacist should not sell, or offer for sale, preparations, the ingredients of which are not known to the medical profession. Secrecy concerning ingredients or false claims made for the therapeutic action of the ingredients should immediately condemn the article. In this respect the pharmacist can be a most important factor in housecleaning the drug world of at least some of its cure-all venders and thereby increase both the doctor's and layman's confidence in medicaments in general. In this respect the pharmacist should feel a definite responsibility to all persons requiring his services.

Advertising has become a tremendously powerful weapon to nostrum manufacturers; $70,000,000 a year are spent by the makers and distributors of such medicines to promote their use. Every conceivable method is used to popularize such medicines. I do not mean to infer, however, that all products advertised under this $70,000,000 program do not merit the use by and the recommendation of the medical and dental professions or the recognition of the pharmacist—but it must be remembered that national advertising does not necessarily guarantee the worth of a product. In fact, the present-day maze of extravagant advertising makes it difficult to determine the true merit of a preparation.

The American Dental Association has a Council, similar to that of the American Medical Association, which was organized to determine the worth of various drugs and preparations used in dentistry. It organized so that men in the dental profession could take guess work out of the use of their medicaments and dentifrices. The reports of the Council on Dental Therapeutics should be a source of information for the pharmacist. The Council determines the therapeutic and scientific usefulness of products manufactured for dental use. The organization of that Council is the American Dental Association's attempt to rid its ranks of unscrupulous manufacturers who have no regard for either science or truth.

The American Dental Association is waging a consistent fight against quacks, cure-all venders and manufacturers. It is refusing to rent floor space at dental conventions to manufacturers of questionable products; its leading dental journals are refusing to sell advertising space in their journals to manufacturers whose products are fraudulent or worthless. In line with its campaign to inform its members of worthless products through the reports of its Council, it has laid down

rigid rules governing the admission of proprietary articles to the list of accepted non-official dental remedies.

It would seem that pharmacists should feel the responsibility of working intelligently and coöperatively with the American Dental Association in its campaign against worthless and fraudulent medicaments and dentifrices.

The rules of the Council are aimed to assure dental preparations of superior standard and quality. Every wide-awake manufacturer of a product of which he is not ashamed will do everything he can to comply with the regulations of the Council. If his product does not bear the stamp of acceptance of the Council on Dental Therapeutics and he will not disclose its ingredients, then you should know that there are one or more of the following reasons why his product is not meeting with the requirements of the Council.

1. The composition of the product is secret.
2. Suitable tests for determining the composition of the product were not furnished the Council.
3. The advertising is misleading.
4. The claims as to the origin are false.
5. The therapeutic claims are unwarranted.
6. The product is unscientific and useless.
7. The package contains the names of the diseases or of conditions for which the product is used in such a way as to suggest self-medication where self-medication is probable.

Of course a manufacturer may have a product which is useful and represent it truthfully, and may not have applied to the Council for approval. Under such conditions ask for information regarding the product from the Council on Dental Therapeutics. It would have much more professional significance if a pharmacist inquired of the Council regarding the merits of a product offered for sale by a manufacturer than to have a dentist write to the Council asking for information about a product a pharmacist tried to sell him. Such a condition was actually experienced. A member of the Dental Council brought the case to my attention urging me to advise pharmacists against recommending secret preparations to members of the dental profession.

The Council on Dental Therapeutics asks only that a product have some scientific or therapeutic reason for its existence; that the material does what its makers claim for it; that its advertising is truthful and that it meets the other requirements of the Council as to composition, test and origin. That is the basis for my urging pharmacists to make intelligent use of the findings of the Council and be the distributors to the dental profession for only such products as will help perpetuate the dentist's faith in drugs and preparations medicinal.

Permission has been granted by the American Dental Association to publish the following list of Accepted and Non-Accepted Drugs and Preparations. This list does not contain information concerning all the drugs sent to the Council for consideration, but it is complete in so far as the Council has published reports on Accepted or Non-Accepted Preparations to date. Subsequent additions will be made to this list as reports are published by the Council. Detailed analysis of the preparations and claims may be found by referring to the bibliography after the title of the preparation.

ACCEPTABLE PRODUCTS.

(All references are to "The Journal of the American Dental Association." The name "The Journal" is only given in listing of the first product and thereafter omitted in order to condense the Bibliography.)

Adrenalin, Parke, Davis & Co., Detroit, Mich. (*The Journal*, 18 (April 1931), 745.)

Adrenalin Chloride Solution, Parke, Davis & Co., Detroit, Mich., 18 (1931), 745.

Ampuls Adrenalin Chloride Solution 1:1000, 1 cc., Parke, Davis & Co., Detroit, Mich., *Ibid.*

Ampuls Adrenalin Chloride Solution R 1, 1/10,000, 1 cc., Parke, Davis & Co., Detroit, Mich., *Ibid.*

Ampuls Adrenalin Chloride Solution ℞ 2, 1:26,000, 1 cc., Parke, Davis & Co., Detroit, Mich., *Ibid.*

Adrenalin Tablets, Parke, Davis & Co., Detroit, Mich., *Ibid.*

Adrenalin Tablets, No. 2, Parke, Davis & Co., Detroit, Mich., *Ibid.*

Adrenalin and Cocaine Tablets, Parke, Davis & Co., Detroit, Mich., *Ibid.*

Alpha-Naph-Co Dental Cream, Carel Laboratories, Redondo, Calif., 19 (1932), 142.

Compound Solution of Alphanaphthol, Care Laboratories, Redondo, Calif., *Ibid.*

Ammoniacal Silver Nitrate, P. N. Condit, Boston, Mass., 18 (1931), 2009.

Ampuls Ammoniacal Silver Nitrate, P. N. Condit, Boston, Mass., 18 (1931), 2010.

Apothesine, Parke, Davis & Co., Detroit, Mich., 18 (1931), 150.

Apothesine and Adrenalin Hypodermic Tablets, Parke, Davis & Co., Detroit, Mich., 18 (1931), 151.

Apothesine and Adrenaline Hypodermic Tablets (℞ "B"), Parke, Davis & Co., Detroit, Mich., *Ibid.*

Apothesine and Adrenalin Hypodermic Tablets, Cylindrical (for pressure Anesthesia), Parke, Davis & Co., Detroit, Mich., *Ibid.*

Apothesine Hypodermic Tablets, 0.08 Gm., Parke, Davis & Co., Detroit, Mich., *Ibid.*

Apothesine Solution, Parke, Davis & Co., Detroit, Mich., *Ibid.*

Bromethane, Parke, Davis & Co., Detroit, Mich., 18 (1931), 149.

Brometone Capsules: 5 grains, Parke, Davis & Co., Detroit, Mich., 18 (1931), 150.

Bromural, E. Bilhuber, Inc., Jersey City, N. J., 18 (1931), 745.

Bromural Tablets, E. Bilhuber, Inc., Jersey City, N. J., 18 (1931), 746.

Calglucon, Sandoz Chemical Works, Inc., New York City, 18 (1931), 2010.

Tablets Calglucon, Sandoz Chemical Works, Inc., New York City, *Ibid.*

Calglucon Effervescent Tablets, Sandoz Chemical Works, Inc., New York City, 19 (1932), 142.

Mead's Standardized Cod Liver Oil, Mead, Johnson & Co., Evansville, Ind., 17 (1930), 1942.

Mead's Standardized Cod Liver Oil Flavored, Mead, Johnson, & Co., Evansville, Ind., 17 (1930), 1932.

Nason's Palatable Cod Liver Oil, Tailby-Nason Co., Boston, Mass., 17 (1930), 1942.

Parke, Davis & Co.'s Cod Liver Oil with Viosterol, 10-D, Parke, Davis & Co., Detroit, Mich., 18 (1931), 1787.

Parke, Davis & Co., Standardized Cod Liver Oil, Parke, Davis & Co., Detroit, Mich., 17 (1930), 1942.

Patch's Flavored Cod Liver Oil, E. L. Patch Co., Boston, Mass., 17 (1930), 1943.

Cod Liver Oil-Squibb, E. R. Squibb & Sons, New York City, 17 (1930), 1942.

Squibb's Mint-Flavored Cod Liver Oil, E. R. Squibb & Sons, New York City, *Ibid.*

Squibb's Cod Liver Oil with Viosterol, 10-D, E. R. Squibb & Sons, New York City, 19 (1932), 327.

Squibb's Cod Liver with Viosterol, 10-D, Mint Flavored, E. R. Squibb & Sons, New York City, *Ibid.*

White's Cod Liver Oil Concentrate, Health Products Corp., Newark, N. J., 18 (1931), 353.

Colgate's Ribbon Dental Cream, Colgate-Palmolive-Peet Co., Chicago, Ill., 17 (1930), 1944.

Dentosal Dental Cream, Tage Samsioe, Boston, Mass., 18 (1931), 552.

Dibromin, Parke, Davis & Co., Detroit, Mich., 18 (1931), 150.

Dibromin Capsules, 6 grains, Parke, Davis & Co., Detroit, Mich., *Ibid.*

Fibrogen Local-Merrell, Wm. S. Merrell Co., Cincinnati, Ohio, 19 (1932), 1238.

Fibrogen Local-Merrell, 7-cc. vials, Wm. S. Merrell Co., Cincinnati, Ohio, *Ibid.*

Germicidal Discs of Potassio-Mercuric Iodide No. 1, Parke, Davis & Co., Detroit, Mich., 18 (1931), 152.

Germicidal Discs of Potassio-Mercuric Iodide No. 2, Parke, Davis & Co., Detroit, Mich., *Ibid.*

Hyclorite, General Laboratories, Madison, Wis., 18 (1931), 1785.

Iodent Tooth Paste No. 1, Iodent Chemical Co., Detroit, Mich., *Ibid.*

Iodent Tooth Paste No. 2, Iodent Chemical Co., Detroit, Mich., *Ibid.*

Maltine with Cod Liver Oil, Maltine Co., Brooklyn, N. Y., 18 (1931), 2411.

Naboc Tooth Powder, Naboc Company, New York City, 18 (1931), 2011.

Neo-Silvol, Parke, Davis & Co., Detroit, Mich., 19 (1932), 508.

Plough's Tooth Paste, Plough, Inc., Memphis, Tenn., *Ibid.*

Procaine-Epinephrine Billets—Novol, Novocol Chemical Co., Brooklyn, N. Y., 18 (1931), 2412.

Procaine-Epinephrine Solution—Anestubes, Novocol Chemical Co., Brooklyn, N. Y., 18 (1931), 2411.

Procaine-Epinephrine Tablets (Novol), Novocol Chemical Co., Brooklyn, N. Y., 19 (1932), 682.

Procaine-Epinephrine Tablets, No. 1, Novocol Chemical Co., Brooklyn, N. Y., *Ibid.*

Procaine-Epinephrine Tablets, No. 2, Novocol Chemical Co., Brooklyn, N. Y., *Ibid.*

Procaine-Epinephrine Tablets, No. 5, Novocol Chemical Co., Brooklyn, N. Y., 19 (1932), 682.

Procaine-Epinephrine Tablets, No. 6, Novocol Chemical Co., Brooklyn, N. Y., *Ibid.*

Procaine-Epinephrine Tablets, No. 10, Novocol Chemical Co., Brooklyn, N. Y., *Ibid.*

Procaine-Epinephrine Tablets, No. 12, Novocol Chemical Co., Brooklyn, N. Y., *Ibid.*

Procaine Solution—Anestubes, Novocol Chemical Co., Brooklyn, N. Y., 18 (1931), 2411.

Procaine Tablets No. 4 (Novol), Novocol Chemical Co., Brooklyn, N. Y., 19 (1932), 682.

Pyridium, Merck & Co., New York City, 19 (1932), 1045.

Aqueous Solution of Pyridium, Merck & Co., New York City, 19 (1932), 1046.

Pyridium Ointment, 10 per cent, Merck & Co., New York City, *Ibid.*

Pyridium Tablets, 0.1 Gm., Merck & Co., New York City, *Ibid.*

Silver Nitrate Applicators, Arzol Chemical Co., Nyack, N. Y., 18 (1931), 2412.

Silvol, Parke, Davis & Co., Detroit, Mich., 19 (1932), 508.

Arm & Hammer Brand of Sodium Bicarbonate, Church & Dwight Co. Inc., New York City, 18 (1931), 746.

Sodium Perborate Flavored—Merck, Merck & Co., New York City, 18 (1931), 2011.

Thromboplastin Local—Squibb, E. R. Squibb & Sons, New York City, 19 (1932), 326.

Trichloroethylene—Calco, Calco Chemical Co., Inc., Bound Brook, N. J., 19 (1932), 682.

Parke-Davis & Co.'s Viosterol in Oil 250-D, Parke, Davis & Co., Detroit, Mich., 18 (1931), 1787.

Viosterol in Oil 250-D, Squibb, E. R. Squibb & Sons, New York City, 19 (1932), 327.

Ephraim Dental Cream, Jerome W. Ephraim, Inc., New York, 19 (1932), 1633.

Zanol Tooth Paste, The American Products Co., Cincinnati, O., *Ibid.*

Sodium Perborate, Flavored-Hennen, Hennen Products, Wheeling, W. Va., 19 (1932), 2024.

Hennen's Tooth Powder, Hennen Products, Wheeling, W. Va., *Ibid.*

Parke, Davis Haliver Oil with Viosterol—250-D, Parke, Davis & Co., Detroit, Mich., 20 (1933), 151.

Soluble-Gelatin Capsules, Parke, Davis Haliver Oil with Viosterol—250-D, 3 minims, Parke, Davis & Co., Detroit, Mich., 20 (1933), 151.

Pycope' Tooth Powder, Pycope, Inc., Joplin, Mo., 20 (1933), 152.

Haliver Oil with Viosterol, 250-D—Abbott Laboratories, North Chicago, Ill., 20 (1933), 723.

Soluble-Gelatin Capsules Haliver Oil with Viosterol 250-D—Abbott, 4 mm., Abbott Laboratories, North Chicago, Ill., *Ibid.*

Ward's Tooth Paste, Montgomery Ward & Co., Chicago, Ill., 20 (1933), 724.

Lactona Dentifrice, Lactona, Inc., St. Paul, Minn., *Ibid.*

PRODUCTS NOT ACCEPTED.

(Including products for which the Food and Drug Administration of the U. S. Dept. of Agriculture has issued Notices of Judgment.)

No. 7 Alkaline and Antiseptic Tablets, John Wyeth & Bro. (Inc.), Philadelphia, Pa., 19 (1932), 1053.

Anacin, The Anacin Co., Chicago, Ill., 16 (1929), 1121.

Antiphlogistine, The Denver Chemical Mfg. Co., New York, 16 (1929), 1517.

Anti-Pyor Mouth Wash, Sharp & Dohme, Inc., Philadelphia, Pa., 19 (1932), 1056.

Atomidine, Schieffelin & Co., New York, 16 (1929), 168.

Dr. Bell's Guaranteed Pyorrhea Remedy,

Rankin-Bell Laboratories, San Francisco, Calif., 19 (1932), 143.

BiSoDoL, BiSoDoL Co., New Haven, Conn., 19 (1932), 1427.

Calsodent, Calsodent Co., New York, 19 (1932), 513.

Campho-Phenique, The Campho-Phenique Co., St. Louis, Mo., 19 (1932), 510.

Cato Anti-Pyorrhea Tooth Paste, Cato Chemical Co., St. Louis, Mo., 19 (1932), 1055.

Chlorax, Chlorine Products Co., Primos, Pa., *Ibid.*

Dar-Ling-Oil, Hemlock Oil Co., Derry, N. H., 17 (1930), 1356.

Sherman L. Davis Treatment, Ucoline Products Co., Chicago, Ill., 17 (1930), 1744.

Dentinol, Dentinol & Pyrozide Co., New York, 19 (1932), 866.

El-Be Oral Mouth Wash, Whitman Pharmacy, Camden, N. J., 19 (1932), 686.

Dr. Ellis' F. E. I. Tooth Paste, F. E. I. Corporation, Pittsburgh, Pa., 18 (1931), 2416.

Emedent, Dr. C. S. Williams, Ellisville, Miss., 17 (1930), 1945.

Emedent Pyorrhea Mouth Wash, No. 1, Dr. C. S. Williams, Ellisville, Miss., 19 (1932), 686.

Epicol, Epicol Products Co., Minneapolis, Minn., 16 (1929), 1320, and 18 (1931), 2416.

Ercolin, Smith Ernster Laboratories, Inc., New York, 16 (1929), 2301.

Ex-Cel Tooth Stain Remover, L. Silverman, Philadelphia, Pa., 18 (1931), 356.

Fayro, Fayro Laboratories, Inc., Pittsburgh, Pa., 16 (1929), 2301.

F. E. I. Solution, F. E. I. Corporation, Pittsburgh, Pa., 18 (1931), 2416.

Foresite Dental Preparation, Foresite Mfg. Co., Minneapolis, Minn., 17 (1930), 1357.

Forhan's for-the-Gums, The Forhan Company, New York, 18 (1931), 548.

Forhan's Pyorrhea Astringent, The Forhan Company, New York, 16 (1929), 1940.

Gilbert's Oral Antiseptic, Gilbert Products Corporation, Morristown, N. J., 19 (1932), 1053.

Gum Rub, Gum Rub, Inc., Washington, D. C., *Ibid.*

Dr. Hand's Teething Lotion, Hand Medicine Co., Philadelphia, Pa., 19 (1932), 330.

Dr. Hubbel's Formula, Hubbel Products Co., Boston, Mass., 18 (1931), 2014, and 19 (1932), 332.

Dr. Huff's Combination Tooth Powder and Mouth Wash, Huff's Tooth Powder Company, Hot Springs National Park, Arkansas, 19 (1932), 1057.

Kemozone, Kemozone, Inc., Long Island City, New York, 17 (1930), 2303.

Kolynos Dental Cream, Kolynos Co., New Haven, Conn., 19 (1932), 328.

Kramer's Original Charcoal Dental Cream, Modern Products, Inc., Jackson, Miss., 19 (1932), 868.

Lavita, Lavita Company, Waterloo, Iowa, 17 (1930), 175.

Lavodent, Lavodent Research Laboratories, Inc., Philadelphia, Pa., 19 (1932), 1056.

Lesser Slim Figure Bath, The Lesser Co., 16 (1929), 2300.

Lorty Antiseptic Tooth Paste, B. F. Allen Co., New York, 19 (1932), 686.

Luebert's Nox'Em Pain Tablets, A. Gustav Luebert, Coatesville, Pa., 19 (1932), 1056.

Lu-Ora, Stevens Luke Co., Thomasville, Ga., 19 (1932), 1053.

Marmola, Marmola Co., 16 (1929), 2301.

McArthur's Dental Massage and Oral Hygiene, Oral Research Laboratories, Detroit, Mich., 19 (1932), 870.

Mico Pyorrhea Solutions, Mico Laboratories, St. Paul, Minn., 18 (1931), 1791.

Mosso's Oil of Salt, C. A. Mosso Laboratories, Chicago, Ill., 18 (1931), 2416.

Mu-Sol-Dent, V. B. Corporation, Pittsburgh, Pa., 15 (1928), 1977.

Nasene, Clayton Laboratories, Washington, D. C., 18 (1931), 146.

Neu-Ora Contact Anesthetic, Neu-Ora Co., Inc., Seattle, Wash., 19 (1932), 1430.

Neuro-Nerve Powders, Neuro Chemical Co., West Brighton, N. Y., 17 (1930), 1357.

New Mix Dental Cream, Gilmont Products, New York, 18 (1931), 148.

Ora-Noid, Ora-Noid Company, Chicago, Ill., 16 (1929), 554.

Painallay, The Painallay Co., Kansas City, Mo., 19 (1932), 1055.

Pearlo Tooth Powder, M. E. Schmidt, Columbus, Ohio, 18 (1931), 146.

Pebeco Tooth Paste, Lehn & Fink, Inc., Bloomfield, N. J., 20 (1933), 2248.

Perdentin, Perdentin Laboratories, New York, 17 (1930), 530.

Dr. A. Peters' Tuberosum Pyorrhea Treatment, Tuberosum Pyorrhea Co., Broken Bow, Oklahoma, 19 (1932), 1054.

Phennol, Phenol Laboratories, Chicago, Ill., 17 (1930), 917.

Dr. Pirtle's Germ Oil, Germ Oil Co., Jonestown, Miss., 19 (1932), 1054.

Pyo-Rem and Pyo-Rem Dental Cream, Pyo-

Rem Chemical Co., Los Angeles, Calif., 18 (1931), 2418.

Pyor-Chloride, Lindsey Laboratories, Santa Barbara, Calif., 19 (1932), 1636.

Pyor-Heal, The Brander Co., New York, 19 (1932), 686.

Pyradium, Radium Remedies Co., Minneapolis, Minn., 19 (1932), 1056.

Pyros, Pyros Co., Denver, Colo., 17 (1930), 2303, and 19 (1932), 1052.

Pyro Sana Tooth Paste, Alhosan Chemical Co., St. Louis, Mo., 19 (1932), 1054.

Pyrozide, Dentinol & Pyrozide Co., New York, 19 (1932), 866.

Radithor, Bailey Radium Laboratories, Inc., East Orange, N. J., 16 (1929), 2139.

Reduc-It, Denver Research Laboratory, Denver, Colo., 16 (1929), 2301.

Salicon, K. A. Hughes Co., Boston, Mass., 17 (1930), 1357.

Sedafen, Sedafen Products Co., Springfield, Ohio, 17 (1930), 1356.

Sed-A-Rex, Epicol Products Company, Minneapolis, Minn., 19 (1932), 1638.

Sedormid, Hoffmann-LaRoche, Inc., Nutley, N. J., 19 (1932), 863.

Semafor, Indicator Laboratories, Chicago, Ill., 15 (1928), 2357.

Sensitex, King's Specialty Co., Ft. Wayne, Ind., 19 (1932), 2196.

Smith's King of All Pain and Tex-A-Tine Ointment, Texatine Medicine Co., Enid, Okla., 19 (1932), 686.

Sodibor, Sodibor Laboratories, White Plains, N. Y., 19 (1932), 867.

Somnoform, Stratford-Cookson Co., Philadelphia, Pa., 18 (1931), 2412.

Sozodont Liquid, Block Drug Co., Brooklyn, N. Y., 19 (1932), 1054.

Squibb Dental Cream, E. R. Squibb & Sons, New York City, 20 (1933), 2248.

Dr. Strasska's Tooth Paste, Dr. Johan Strasska Laboratories, Los Angeles, Calif., 19 (1932), 2200.

Stypstringant, Lawrence Chemical Co., Atlanta, Ga., 19 (1932), 1053.

Subidin and Myodine, I-O-Dine Laboratories, Inc., Philadelphia, Pa., 19 (1932), 1633.

Tartaroff, Tartaroff Company, Chicago, Ill., 15 (1928), 2167, and 17 (1930), 344.

Tricho System, Albert C. Geyser, New York, 16 (1929), 2300.

Vacher's Antiacid Dentifrice, E. W. Vacher, New Orleans, La., 18 (1931), 147.

Vident No. 4 Powder for Riggs' Disease and Vident No. 6 Riggs' Disease Mouth Wash., Katz & Besthoff, New Orleans, La., 19 (1932), 1052.

Wag's Salve, Wag's Chemical Co. (inc.), Knoxville, Tenn., 17 (1930), 1356.

Dr. E. A. Welter's Antiseptic Tooth Powder, E. A. Welter's Tooth Powder Co., Jacksonville, Fla., 19 (1932), 1055.

X-It, X-It Laboratories, Inc., New York, 16 (1929), 365.

Zi-O-Dine Dental Cream, Iodine Products Co., Laurel, Miss., 19 (1932), 686.

Fantazn No. 1, Fantazn Laboratories, Los Angeles, Calif., 20 (1933), 1526.

Pals Improved Reducible Silver, Dr. B. L. Paley, Brooklyn, N. Y., 20 (1933), 1528.

Pals Improved Aconite and Iodine, Dr. B. L. Paley, Brooklyn, N. Y., *Ibid.*

Pals Benzocaine Compound, Dr. B. L. Paley, Brooklyn, N. Y., 20 (1933), 1529.

Pals Gum Balsam, Dr. B. L. Paley, Brooklyn, N. Y., *Ibid.*

Pals Pyorrhea Astringent No. 1, Dr. B. L. Paley, Brooklyn, N. Y., 20 (1933), 1530.

Pals Pyorrhea Astringent No. 2, Dr. B. L. Paley, Brooklyn, N. Y., 20 (1933), 1531.

Pals Surgical Powder, Dr. B. L. Paley, Brooklyn, N. Y., *Ibid.*

Styptysate, Ernst Bischoff Company, New York City, 20 (1933), 1532.

ALCHEMICAL SYMBOLS.*

BY J. HAMPTON HOCH.

Alchemy, the precursor of chemistry, is of interest to the pharmacist because, inasmuch as it has affected the science of chemistry, it has influenced pharmacy. Some small remnant of alchemical terminology is still to be encountered in pharmaceutical synonyms, *e. g.*, water of Saturn, lunar caustic, crocus Martis, etc.; and

* Section on Historical Pharmacy, A. PH. A., Toronto meeting, 1932.

our present method of abbreviating the chemical elements is derived from alchemy through Geoffroy, Bergman, Dalton and Berzelius. When viewed in the light of their remote antiquity, many of the symbols used by the medieval alchemists were but modern applications of ancient ideographs.

When and where the "royal art" originated is not certainly known. Egypt is generally considered the birthplace of chemistry, or, to be more exact, of experimental alchemy. The Land of Chem (or Cham), as Egypt was called, is the root of our word "chemistry"[1] and the Arabic article "al" prefixed to the same root gives us the word for the "black art." Egyptian priests were known to be adepts in certain chemical arts, and, during the later dynasties, their temples occasionally had laboratories attached.

Frequently overlooked in the discussion of the history of alchemy is the fact that it originated as a philosophical system, "an attempt to apply, in a certain manner, the principles of Mysticism to the things of the physical plane." The experimental development of the philosophy is coeval with the beginnings of the science of chemistry. The abstract teachings of the art are buried in a mass of figurative and symbolic terminology for the purpose of shielding the esoteric instructions from the eyes of the vulgar and profane, for the adepts considered a knowledge of their secrets dangerous for the generality of people;[2] and then, too, their free doctrine was at variance with established religion.

Because of the liaison between alchemy of the spirit and alchemy of matter, the mystical and symbolic expressions of the former were perpetuated in the latter. In any attempt to discover the origin and trace the development of the various symbols and curious designs with which later alchemistic writings are embellished, we must push back through the mists of antiquity, back to the beginnings of a written language, and even earlier, to the time when man first acquired an intellectual interest in the firmament.

The usual coupling of the metals and planets leads directly to astronomy, the earliest of the sciences. Astrology, which chronologically precedes astronomy, arose from man's interpretation of the changes of the celestial bodies as tokens of good-will or enmity, of favor or displeasure of the gods. What primitive man did not understand he feared; and there was much that he did not understand. Contemplation of the heavens and the realization that their phenomena intimately concern man and all nature placed them in the category of Ultimate Causes. The personification and deification of the sun and moon are older than any written records; the worship of the stars was usually subordinated to the "King and Queen of the heavens."

The worship of earth, air, fire and water sprang from fetichism, and primitive religions passed the worship of these elements down to the Sumerian and Egyptian civilizations, where this worship became a part of the religious system. Every

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[1] First use of the term is found in the writings of Zosimus of Panopolis, in Upper Egypt (3rd–4th century).

[2] Philon the Jew (*c.* 20 B.C.–40 A.D.) in "De Vita Mosis" particularizing the sciences which Moses studied in Egypt mentions Symbolic Philosophy (written in sacred characters), which the Greeks had heard came from the Assyrians, who transmitted the art of letters, and the Chaldeans, who understood the science of the stars.

phase of nature was, over the course of centuries, provided with a special guardian and controlling deity.

The Greek philosopher, Empedocles of Agrigent (*c.*440 B.C.), considered fire, air, water and earth (deified as Zeus, Hera, Nestis and Aidoneus) to be the four elements; a fifth, "ether," was added by Aristotle. "These elements were regarded not as different kinds of matter, but rather as different forms of the one original matter, whereby it manifested different properties." The two alchemistic principles generally called "man and woman, red and white, sun and moon, sulphur and mercury," were likewise regarded as properties rather than as substances. "Salt" was later added by Paracelsus as a third elementary principle.

The blending of cosmogonic and religious ideas was well advanced in Babylonia as far back as thirty-five centuries before our era, when specific deities were connected with the sun, moon and planets.[1] The further development of Babylonian astrological views, chiefly under Greek influence, led to the idea that each of the seven metals was under the influence of one of the seven planets; and this idea culminated in the Ptolemaic system which endeavored to bring all the known sciences within the scope of astrology. Thereupon the tendency to use the names or astronomical symbols of the planets for their respective metals followed quite naturally.

The human mind is so constituted that it craves symbols for the representation of its ideas and principles, and this tendency was particularly strong in the peoples of the East. In the astronomical signs for the sun, moon, planets and zodiac we have symbols representing, directly or metaphorically, by form or significance, the objects intended. In the following sections we shall attempt to show how the various symbols for the metals came to be used in their respective forms.

Gold is represented as a circle with or without a point at its center. This symbol is the divine circle associated with the sun. The ancient Sumerians worshipped a sun-god whom they called Utu or Babbar. Their earliest symbol for this deity was , later (about 2400 B.C.) modified to which was as close as they could approximate a circle with cuneiform writing. This sun-worship penetrated prehistoric Egypt, where it became the main religion of the early kings, as early as 3100 B.C., imposing itself on a substratum of totemism. Ra, the sun-god, was designated by the divine circle in the hieroglyphics of the Egyptians,[2] clearly a personification of the physical sun as was also the Babylonian Shamash, the Greek Helios, the Latin Sol. Identification of Ra with those local deities which he did not supplant resulted in many titles being given to the sun-god.[3] The desire of the ancient rulers to be considered divine gave rise to the king-sun

[1] The astronomer-priests noting the number of planetary bodies came to ascribe a particular sacredness to the number seven, and the seven planetary deities held a place of peculiar consequence amid the spirits of heaven and earth in Mesopotamia.

[2] Breasted says that the most ancient symbol of the sun-god was a pyramid. Amenhotep IV (*c.*1370 B.C.) gave a new name and symbol to the sun, a disc with rays.

[3] Theocrasia was very prevalent in Egypt. The worship of Ra was grafted onto that of Atmu (Tem), while Osiris and Heru-neb ("the golden Horus") and Amen and Chnum and Aton were all fused at different times with the sun-deity.

idea and the sun was frequently referred to as "noble," "king," "lord." Although a female goddess at first, masculine attributes very early supplanted the feminine ones which were then assigned to the moon. The inherent color of gold was likened to the sun, which was described as "golden-eyed," "golden-tongued," "golden-handed," etc. The hieroglyph[1] for the metal gold [2] itself is a simplified form of the winged-disc, a flying-sun deity (Horus) of Upper Egypt.

The Greeks distinguished between physical light and mental illumination—a distinction which placed Helios on one side and Phoebus Apollo on the other. Helios is represented with the solar disc and rays behind his head in an ancient Trojan relief, while Apollo hurling his disc alludes to the course of the sun through the sky.

The old Roman family of the Aurelii were believed by the ancients to have taken their name from the sun, their family deity.[3] Although occupying an insignificant part in the religion of the ancient Romans, sun-worship, introduced from the East, received imperial patronage in the first century before our era and spread throughout the empire, where Strabo says the Persian god Mithra was worshipped under the title of the Unconquered Sun. The Roman gods Sol and Apollo were both sun-gods; neither more sharply distinguished from each other than the Greek Helios and Apollo.

The character for silver is a semicircle or a crescent. The gradual waxing and waning of the moon to the primitive mind was personified by woman, and the ancient moon goddesses were mostly mother-deities, spouses of the sun.[4] The Assyrian Sin and Egyptian Isis (especially in later times) were linked with the moon. The symbol of Sin was a crescent moon; a moon was the head-dress of Isis, the Queen of Heaven, to which the horns of the cow-goddess Hathor (Het-heru) were added after the fusion of the two deities. The hieroglyph for silver [2] was a combination of "het" (-white) and "nub" (gold).

As goddesses of the moon, the Grecian Selene and Artemis stood in the same relation to each other as Helios did to Phoebus Apollo. Selene is figured with a half-moon on her brow, or less frequently with horns.

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* Chaucer in Chanones Yemanne's Tale says:

> "Sol gold is, and Luna silver we threpe;
> Mars iren, Mercurie silver we clepe:
> Saturnus led, and Jupiter is tin,
> And Venus coper, by my faderkin."

The sequence found in the old cuneiform literature of Babylonia is: Sun, Moon, Jupiter (tin), Venus, Saturn, Mercury, Mars.

[1] Assyrian monuments show the sun represented as a disc with long wings similar to the Egyptian hieroglyph.

[2] The author corrects symbols for gold and silver in saying that the dots should be open circles.—*Editor.*

[3] The Latin "aurum" apparently derives from the name of this family, which Frazer says should be Auselii since the old Sabine name for the sun was "ausel."

[4] The old Babylonian moon-god, Nannar (Enzu), worshipped at Ur was masculine.

The second most precious metal was naturally associated with the moon, wife of the golden sun, since the color of her lustrous beams was very like this metal. The silvery moon was as much the theme of the ancient poets' lays as it is the motif of modern songsters.

Tin is symbolized by the sign of Jupiter ♃. Some have suggested that this symbol represents Jove's thunderbolt, others that it is a modified form of the Greek zeta, the first letter of Zeus's name. We are inclined to a much earlier derivation.

The Roman sky-god, Jupiter (from Zeus pater), and his Grecian counterpart were omnipresent and beneficent deities, controlling all the heavenly phenomena. In Egypt the local god of Thebes, Ammon (Amen), had been raised to the first position in the pantheon, where, as Amen-Ra, he was regularly called "King of the Gods and Lord of the Throne." The ram was sacred to Amen and his head-dress is represented with the roundly curved ram's horn. The combination of the curved horn and the scepter of the god gives us the character for the sky-god.

In the Sumero-Accadian pantheon we find Marduk associated with the planet Jupiter, and although he, too, was called "King of the Heavens," we can adduce no symbol similar to that used for tin.

The symbol for copper, a circle with a cross beneath, is the planetary sign of Venus. According to Bailly, the mirror of the Roman goddess of love and beauty is the source of this symbol. Since the worship of Venus was not general in Rome until later times, an earlier derivation is indicated.

One of the most celebrated shrines of the ancient world was the temple of Aphrodite, at Paphos in Cyprus. This Grecian goddess of love—the love thought to be the cause of productiveness—was intimately associated with the island of Cyprus[1] whose rich copper mines were early exploited by the Phœnicians. In fact, the Phœnician Astarte was the transplanted source of Aphrodite.[2] The Phœnicians, in turn, had adopted the Babylonian mother-goddess, Ishtar, who embodied the reproductive energies of nature, and who had been identified by the Babylonian astronomers with the planet Venus.

The Egyptian hieroglyph for copper bears no resemblance to any of the symbols or attributes of the mother-goddess, but the ankh or crux ansata, the symbol of life, is extraordinarily like the symbol for copper. This "cross with a handle," borne by almost every Egyptian divinity, represents the male triad and the female unit and is a likely character to associate with the great goddess of fertility.

Lead is characterized by a sickle, the sacred emblem of Saturn. The association of the scythe with the precursor of Saturn, the Grecian god Kronos, is well known. We could elicit no similar emblem from Egyptian or Babylonian deities connected with this planet and, therefore, incline to the belief that the association of this symbol with the planet Saturn does not antedate the Greeks.

Mercury is symbolically represented by a circle, joined to a crescent above and a cross beneath. Some have claimed that this character represents the caduceus which Mercury carried in his hand in his flying embassies for the gods. Mer-

[1] The word "cuprum" is derived from the name of this island.

[2] Lucian identifies her with Selene, the moon-goddess, and with the planet Venus.

cury, or Hermes as he was known to the Greeks, undoubtedly was derived from the Egyptian god Thoth (Tehuti).[1] As a "power from heaven," Thoth represented the divine intelligence, the scribe of the gods, and was the inventor of all the arts and sciences. Among the emblems associated with this deity, the combined disc and crescent is used to express certain phases of his character, and we think the probable source of the emblem for "argentum vivum" is the combination of the ankh and the crescent.

The "hermetic" books attributed to Thoth have their counterpart in the "Wisdom of Nebo," a set of tablets in the royal library of Ninevah, attributed to Nebo (Nabu), the Chaldean god presiding over knowledge and intelligence, the scribe of the gods, the originator of writing. The symbol of Nebo, however, does not resemble the symbol of Thoth.

Symbols for Metals.*

Alchemical and chemical symbols for metals. The first three are in sequence of the 15th, 16th and 17th Centuries. The next three 1783, Bergmon; 1808, Dalton; 1814, Berzelius—from Ingo W. D. Hackh—"A Chemical Dictionary."

The character used to represent iron is derived from the shield and spear of the Roman god, Mars, who, as the god of war, was naturally furnished with the two most common instruments of war. The fiery aspect of the planet Mars corresponds well with the bloody character of the deity by whose name it is distinguished. The Grecian counterpart of Mars, called Ares, was also represented with the shield and spear. Although we can adduce numerous connections between the planet Mars and the war-gods of ancient peoples, we know of no definite symbolism of spear and shield antedating the Greeks.

The literature of alchemy during the early centuries of our era is very scanty. The Roman emperor Diocletian decreed (292 A.D.) the destruction of all the books of the alchemists, fearing that the opulence of the Egyptians would make them less tractable to imperial demands. Copyists of Syrian and Moslem academies managed to preserve for us a few of the writings, the Moslems being the continuers of the Hellenistic tradition and the initiators of medieval alchemy. Translations, introduced into Western Europe through Moslem Spain during the 12th and 13th centuries, furnished the soil from which the extensive alchemical literature of the succeeding centuries flowered. The use of symbols passed from the Greeks to the Syrians but not to the Moslems, who had a religious objection to figures or drawings of objects as tending to idolatry. Symbols first found their way into medieval European writings on alchemy about the 15th century through Greek copies of the

[1] The ancient Greeks adopted most of their theology and mythology from the Egyptians.

* See page 434.

Syrian works. Distortions and mutilations had crept into the copies during the passage of time and because of repeated transcriptions. The obligation of secrecy continued to be stressed,[1] and symbols and secret names finally became legion.

The various symbols underwent very little change during their transmission through the centuries, although new characters were devised to represent the ever-increasing number of substances with which the "pseudo-alchemists" experimented in their search for the "elixir" and the "stone." These symbols were a convenient shorthand system at a period when caligraphy was little employed; and so the muddle of arbitrary figures wriggled and twisted over the pages of pharmaceutical and chemical writings down to the 19th century, when they were replaced by our present method of abbreviation.

REFERENCES.

Bailly, "Histoire de l'Astronomie Ancienne" (1781).
Bayley, "Lost Language of Symbolism" (1912).
Breasted, "Development of Religion and Thought in Ancient Egypt" (1912).
Brown, "History of Chemistry" (1920).
Budge, "The Book of the Dead" (1913).
Eichler, "Customs of Mankind" (1924).
Frazer, "Worship of Nature" (1926).
Hopkins, "A Modern Theory of Alchemy"—address before Amer. Chem. Soc. (1924).
Inman, "Ancient Pagan and Modern Christian Symbolism" (1922).
LaWall, "Four Thousand Years of Pharmacy" (1927).
LeClerc, "Histoire de la Medecine" (1729).
Mason, "A History of the Art of Writing" (1920).
Murray, "Manual of Mythology" (1895).
Pearson, "Chemical Nomenclature" (1799).
Peet, "Cambridge Ancient History" (1924).
Peters, "Aus pharmazeutischer Vorzeit in Bild und Wort" (1891).
Peters, "Pictorial History of Ancient Pharmacy"—translated by Netter (1889).
Petrie, "Religious Life in Ancient Egypt" (1924).
Redfield, "Gods—A Dictionary of the Deities of All Lands" (1931).
Redgrove, "Alchemy, Ancient and Modern" (1922).
Sarton, "Introduction to the History of Science" (1927, 1931).
Schultze, "Fetichism" (1885).
Silberer, "Problems of Mysticism and Symbolism"—translated by Jelliffe (1917).
Thompson, "Mystery and Romance of Alchemy and Pharmacy" (1897).
Thorpe, "History of Chemistry" (1909).
Wall, "Tract on Symbols" (1783).
Williams, "The Great Astronomers" (1930).
Wynne, "Mysticism and Symbolism in Relation to the History of Medicine"—J. Ind. Med. Assoc. (1922).
"Encyclopedia Britannica" (1910).
"New International Encyclopedia" (1914).

[1] The hermetic philosophers continued to write in figures of speech and with symbols because they feared the persecution of the Church. Augustine began the war on symbolic language, the use of which he declared was a characteristic of the Gnostics, and from 325 A.D. on, every departure from the beliefs of the state church was considered a state offense. Pope John XXII, in the 14th century, issued a strong bull against the hermetic art as devil's work. The 15th century saw local decrees against alchemy in Venice and Nuremburg; also by the English Parliament.

ADDRESS OF THE PRESIDENT OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

BY ROBERT L. SWAIN.

Due to an unusual spirit of forbearance, the address of the president has become one of the time-honored customs of these annual meetings. And, relying upon a continuance of your good nature, I am happy to conform to the custom to-night. But first, let me admit my indebtedness to that line of fine men who have preceded me in this high office. I confess freely that much of the inspiration which has come to me is the result of an interested and diligent study of their distinguished work. Nowhere is there to be found evidence of a higher ideal, a more earnest and practical point of view or a more consistent purpose than in the presidential addresses delivered before this body. As I look back upon this great mass of constructive material, I can only venture the hope that I have measured up, as best I could, to the high standard they long ago set up.

R. L. SWAIN.

One of the very first things the president of this ASSOCIATION faces is the vast responsibility which he must carry. To be compelled to pass judgment, to make decisions, and to take a real part in working out policies and problems is vastly different from sitting in idle contemplation on the passing scene. No president, I am sure, ever sought to shirk his responsibility. I, in my own way, have attempted to face mine.

As I look back over the eight months of my term of office, I am certain that some worthwhile things have been done. I am conscious that I have approached my problems in my own way. I am aware that I have seen the office through my own eyes. In other words, there is such a thing as the presidential interpretation of the presidency.

This address, then, is my interpretation of the presidency. I want to emphasize that I am expressing my own views. I am submitting personal evaluations and interpretations of the many things which have demanded my attention. I stress the personal nature of this address so that the ASSOCIATION may be completely free to act as it seems best regarding the proposals I advance or the suggestions I submit. The ASSOCIATION is fully absolved from any collusion or collaboration in these respects.

For these reasons, I shall make no attempt to give you a detailed statement of the general work the ASSOCIATION has carried on. Fortunately, much of this is done year in and year out with little thought to the one then holding the presidential chair. This work is peculiarly and preëminently the work of the secretary and he should present it. I have purposely sought not to infringe upon his field. It is to the secretary that we should look for portrayal of the ASSOCIATION year, and for an analysis or interpretation of the work carried on. The secretary's

report should be printed in advance of the meeting, and be made an outstanding feature of the annual program.

At the outset of this address, I desire to express my real devotion to the principles which have actuated the AMERICAN PHARMACEUTICAL ASSOCIATION since its inception. A high note was sounded at the very beginning. Within their sphere and for the fulfilment of their purpose, the great Constitution and Code of Ethics formulated at the first meeting of the ASSOCIATION in 1852 stand with the finest expressions of professional opinion to be found anywhere. Even at this late day, they challenge our admiration, and impel us to renewed devotion. Throughout its history, the ASSOCIATION has been steadfast in its adherence to sound ideals. Petty politics have not crept in, self-seeking has not asserted itself, and nothing has been able to entice it away from the early precepts. It stands to-day as the embodiment of sound thinking, unselfish leadership, and as pointing the direction in which pharmacy might safely move. In spite of the changes which have come about on all sides, and in spite, too, of the uncertainty and confusion of the moment, the ASSOCIATION should continue its efforts to advance pharmacy as an essential public health profession. The ASSOCIATION is faced with a magnificent destiny. The future of pharmacy may well be said to rest upon its integrity. To-day the AMERICAN PHARMACEUTICAL ASSOCIATION has become recognized as a national, non-profit, professional body of pharmacists, pharmaceutical educators, law-enforcement officials, research workers, and others interested in the protection of public health and the treatment of disease. It is my earnest hope that its activities may be confined to the fulfilment of these high and inspiring purposes.

This meeting of the ASSOCIATION will long be remembered as one of great historic significance. The center of the stage is held by the American Institute of Pharmacy, as the headquarters building of the ASSOCIATION has been so rightfully named. The dedication exercises, to be observed to-morrow, mark the close of one important phase of this great undertaking. This magnificent building, a real epic in marble, represents one of the most important accomplishments of our profession. It typifies, in a peculiarly beautiful manner, the highest ideals of pharmaceutical efforts. It proclaims, in wondrously pleasing notes, the meaning of the service which pharmacy carries on. It stands, as it will long continue to stand, a classic tribute to those who have seen beyond the confusion of the moment to the deep cool pools from which come intrinsic and lasting things.

While the dedicatory services are not to be anticipated at this time, I do want to point out the necessity of using the building as a real pharmaceutical workshop. A magnificent plant has been provided, and is now ready for the best possible use. Every group, devoted to the professional advancement of pharmacy, should center its activities here. No more fitting place can be found for the offices of the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy. The work which they do is closely connected with the basic purposes of the AMERICAN PHARMACEUTICAL ASSOCIATION. These two organizations would immediately find themselves more closely in touch with national thought. They would become, in every sense of the word, the national authorities in their respective fields.

Not only should these two great groups be brought in, but there are many other activities which the ASSOCIATION should inaugurate as promptly as possible. There is an urgent demand for additional publications. Surveys and special professional and economic studies await only the facilities with which to proceed. Statistical, legislative and legal departments should be set up. Research studies bearing upon the United States Pharmacopœia and National Formulary should be provided for. The drug industry should look here for the establishment of drug standards, and for working out the important technical and scientific bases upon which they rest. With these functions in full swing, little would be needed to make this building a practical and effective pharmaceutical institution.

It is recognized, of course, that any such program requires funds. When the building project was first launched, the objective was one million dollars. The half-way mark has been nobly reached. There remains the second, and perhaps equally important part. Adequate financial support must be forthcoming if the ASSOCIATION is to carry out its magnificent plans, and do the job that must be done. With this thought in mind, I recommend that the Committees on Campaign Funds, Site, and Plans for the A. PH. A. Headquarters Building be discontinued, and that a new committee be set up to consolidate the work done so far and to push on to the ultimate objective. I would suggest that the title be the American Institute of Pharmacy Maintenance Committee. This committee should be empowered to undertake the collection of funds for the maintenance and development of the ASSOCIATION'S activities so that the best use may be made of the facilities now enjoyed.

I further recommend that Doctor H. A. B. Dunning, chairman of the present Campaign Fund Committee, be asked to assume the chairmanship of the Maintenance Committee. No one knows more than I the great load he has carried, and the fine job he has done. Under other circumstances, I should feel that he has earned the right to retire. However, as great as has been the success of his labors, I believe a larger opportunity awaits him. Without his judgment, his faith, his idealism, it is certain that the headquarters building would not have been so promptly realized. With his great talents placed behind this final phase of the job, I am sure it will be brought to a successful conclusion.

I should like to pay my personal tribute to all who contributed in any way to the erection of the headquarters building. Over thirteen thousand people pledged funds for this great undertaking. I especially desire to express thanks to the members of the various committees engaged in this work. For ten years they labored for the attainment of their goal. They have made a contribution to the ASSOCIATION and to pharmacy which will stand as an inspiration for ages to come. The joy which comes from doing the job should be theirs on this great occasion.

The past year has been an outstanding one in the A. PH. A. For a long time, the ASSOCIATION has been working for the recognition of pharmacy as a requirement in every hospital. It is with pleasure that I announce that the Council on Medical Education and Hospitals of the American Medical Association has accepted this view, and now lists pharmacy among the essentials of a registered hospital. The Council states that "the handling of drugs should be adequately

supervised, and should comply with State laws." The AMERICAN PHARMACEUTICAL ASSOCIATION is to be congratulated in bringing this great effort to a highly satisfactory conclusion.

The final publication of the Prescription Ingredients Survey and the Studies of Professional Pharmacy as carried out by the St. Louis Drug Store Survey impress me as basic contributions to the betterment of pharmacy. They supply the structural data upon which the profession depends. I strongly urge these publications upon the educational and registrational groups, and upon all interested in the development of pharmacy along professional lines.

The fiftieth anniversary of the establishment of the National Formulary is fast approaching. The ASSOCIATION should mark the occasion in a fitting manner. It is noteworthy that the New York Branch has already commemorated the forerunners of this highly significant event. The National Formulary is one of the great pieces of work the ASSOCIATION has developed. It is recognized, together with the United States Pharmacopœia, by federal and state food and drug laws as a legal standard. In many states, the pharmacy laws demand that a copy of the current standards be kept in all drug stores at all times. It is recommended that a determined effort be made to have such a provision in the laws of every state. The National Formulary has become an essential adjunct to medical practice. It is a most fitting expression of professional pharmacy. The ASSOCIATION should never lose sight of its responsibility in this matter, and should bend its every effort to maintaining the National Formulary in the high position it has attained. The ASSOCIATION is greatly indebted to Doctor E. N. Gathercoal and his colleagues on the Revision Committee for their devoted work preparatory to issuing the sixth edition.

The annual observance of Pharmacy Week had its inspiration in this ASSOCIATION, and has always been regarded as peculiarly within the field covered by this body. I have always felt that setting aside one week for the presentation of professional pharmacy to the people of this and other lands is as little as a professional group can do. I have not the slightest doubt that the future of pharmacy depends entirely upon its professional service. It is the basic thing in every pharmaceutical effort. Pharmaceutical legislation, pharmaceutical education, the whole of pharmaceutical service rests upon the professional character of pharmacy. Pharmacists should be keen to recognize this, and diligent in their efforts to impress it upon the public mind. I cannot be too emphatic in urging pharmacists to embrace every opportunity to advance and elevate their professional work as a basic and fundamental thing. The principles underlying it are sound, and the whole idea is a dignified and worth-while approach to a most important subject. I hope that 1934 will witness the most zealous observance of Pharmacy Week.

The Remington Medalist this year is Sir Henry S. Wellcome. This medal is awarded by the New York Branch of the ASSOCIATION to that pharmacist who has done most for pharmacy. Sir Henry would seem peculiarly worthy of this honor. He is one of the truly great men developed in this profession. His research studies have benefited the entire world. He is regarded as one of the most enlightened philanthropists. It is fitting, I think, that the award should be made an outstanding feature of this meeting.

There are some defects, so I believe, in the organizational set up of the ASSOCIA-

TION. It is my judgment that the retiring president should become a member of the Council. Such a procedure would benefit the ASSOCIATION by keeping the president in active service for at least two years. I, therefore, recommend that the Constitution and By-Laws be amended so as to bring this condition about. I have no hesitancy in making this recommendation because, under the rules, it could not become effective until the close of my successor's term of office.

I am also constrained to suggest that study be given to the custom which has sprung up of nominating the chairman of the House of Delegates for the presidency. In this matter I speak from experience. Inasmuch as the chairman of the House appoints the Committee on Nominations, I have felt that it was an embarrassment to him to be the recipient of honors at the hands of his own committee. If the chairman, by virtue of his office, is to be nominated for the presidency, then the By-Laws of the ASSOCIATION should so state. A study of the matter over the past few years will show an almost unbroken precedent in this respect. I have no real objection to the matter although the House of Delegates was not organized with this thought in mind. However, simply to bring the question squarely before the ASSOCIATION, I recommend that the chairman of the House of Delegates be ineligible for nomination for the presidency during his term of office. In case this is favorably acted upon, I further recommend that it shall not apply, in any sense, to the incumbent chairman or vice-chairman.

I have come to the conclusion that it is probably unwise to nominate three candidates for the presidency. Such a three-cornered contest seems to me unsuited to the purposes of the ASSOCIATION. I should prefer to see two candidates only. As the matter now stands, the Committee on Nominations can be regarded more nearly as a Committee on Elections. By a strategic grouping of the candidates, the election of one can be readily brought about. I think it would be much more in harmony with fair practice to make nominations on the basis of merit, and leave the election to the wishes of the membership. A Committee on Nominations is a helpful thing only so long as it restricts itself to making nominations. It goes beyond its province, and renders the ASSOCIATION a pronounced disservice when it seeks to control the election. I think the successive Committees on Nominations should be instructed to study the general prevailing conditions, and to select men from different sections of the country for nomination for the presidency, so that all sections might be honored in this way. Of course, the governing principle should always be the good of pharmacy and the advancement of the interests of the ASSOCIATION. However, it is believed that this principle can be served and all sections of the country recognized at the same time. For this reason, I recommend that the By-Laws be so amended as to provide for the nomination of two candidates only.

I have given careful thought to the work done by the Committees on Prescription Tolerances and Weights and Measures. As the work of these two groups develops, it will be found mutually inclusive. I thus suggest that the chairman of the one shall be an ex-officio member of the other. I recommend that the chairman of the Section on Practical Pharmacy and Dispensing be an ex-officio member of each of these committees. This section is peculiarly concerned with prescription tolerances, and the actual conditions under which compounding and dispensing are carried on, and should have an official part in furthering these two Asso-

CIATION projects. The annual reports of these committees should be submitted to the Section on Practical Pharmacy and Dispensing as a regular routine.

Some notice should be given the great questions raised by the passage of the National Industrial Recovery Act. Pharmacy, in all its branches, became immediately involved in the machinery thus set up. Some have criticized the ASSOCIATION, because of its strong place in the professional field, for taking a part in what the critics have wrongfully considered a purely economic problem. However, the NRA movement is not necessarily economic. I would prefer to state its purpose in terms of social adjustment. In other words, pharmacy, together with all other interests, was drawn into an effort, the ultimate purpose of which is to effect profound social change. With this view clearly in mind, I doubt that anyone can deny that this ASSOCIATION had a real place in working out whatever was thought best for pharmaceutical interests. For my part, I think the ASSOCIATION would have been grossly derelict in its duty had it failed to take its share of the responsibility. Whatever may be the ultimate results of the recovery program, every one knows that it has brought about profoundly significant changes in our national thinking and point of view. The present manifestations on the political screen may be understood and accepted with less difficulty if they are seen as an effort to work out a sounder social creed, and to make social forces more compact and articulate. Undoubtedly, it is a profound experiment in the realms of sociology and economics. But, the mere fact that it deals in vastly important human equations, and is devoted to the betterment of human relations, makes it an experiment in which all must participate.

The NRA program, the whole code effort, as imperfect and contradictory as it undoubtedly is, is simply the first manifestation of forces seriously devoted to the task of creating a new economic system which will be more responsive to the social impulse. Much of what is being done is highly controversial. Some see in it an attempt to overthrow existing political institutions. Some have gone so far as to declare that we are in the midst of a social revolution, the aims of which are in open hostility to constitutional government as that term is generally understood. I think there is real evidence of some such desire on the part of those who are easily influenced by philosophies they cannot understand, and who fall a prey to silly and half-baked generalities. Specifically, I am content to leave these mental scarecrows, whether they be in the Government service or outside of it, to sizzle in their own pot. They are no more than mildly pathologic pimples on an unusually healthy body. Whether they disappear or whether they remain is not of the slightest importance. America, thank God, rests on something more secure.

I am certain that in due course, and time must be given to working out any fundamental concept, the general principles recognized in the codes will be shown to be advantageous to all branches of industry and society. Already it must be apparent that the imperfections and contradictions are being ironed out. In all of the present disturbances and confusion, we should seek to see things over a long range. The mere fact that an attempt is being made to meet certain situations is a far cry from an abandonment of our basic institutions. I am certain that we shall emerge from the present strife a more intelligent and a more awakened people.

I am truly proud of the great part played by the ASSOCIATION in this national drama. I am proud that its prestige was recognized, and that its sane and con-

servative view was relied upon in working out the problems of the past few months. Undoubtedly, the ASSOCIATION has won a larger place in the hearts and affections of pharmacists themselves. I know that the Government has come to a much sounder appreciation of what pharmacy is from the mere fact that the ASSOCIATION faced into the fight rather than standing on the side-lines while issues of such terrific importance were being fought out.

At this point, I should like to suggest that some study be given to the formation of state codes. I am inclined to feel that much of the Federal systems of codes will prove unsound and unworkable. There is grave doubt regarding their legality. Aside from the national emergency, they would undoubtedly be given little consideration. They are in direct and flagrant conflict with constitutional government in this country. To make them permanently effective requires a complete abandonment of the principles for which the country is understood to stand. After the emergency has passed, there will still be good reasons for outlawing unfair business practices, and for retaining public supervision over hours and wages of employment. While there is no assurance that state codes will be free from legal defects or constitutionally sound, it is believed they offer some promise of permanently dealing with certain aspects of the matter. State codes have been set up in a few states. It is recommended that a special committee be appointed to make a thorough study of all state codes, and the legislative acts under which they have been created, as many of their provisions are certain to affect the conditions under which pharmaceutical service is made available.

I cannot forego this opportunity of expressing officially and personally my profound appreciation of the part played by Doctor E. F. Kelly in the great scenes of the past few months. Pharmacists everywhere should know just what a burden he has carried. With no intention of disparaging in the least the work done by other pharmacists and other pharmaceutical organizations, I am confident that Doctor Kelly has carried a large part of the load. Against his will, he was drawn into the center of the fray from the very outset. He was called upon to work out the problems which became acute under the President's reëmployment agreement. When the whole matter became deadlocked over the hours under which drug stores were to operate, and pharmacy stood to suffer extremely heavy burdens, other pharmacists and other organizations called upon Doctor Kelly to iron things out. In all of this, he consistently refused to appear except as coöperating with others for the general good. He bore the brunt of the negotiations which finally resulted in the Retail Drug Code. Upon the insistence of national pharmaceutical leaders, he became a member of the National Retail Drug Trade Authority. Later, by the same forces, he was placed on the Committee on Service and Distribution, to make a study of distribution factors which affected the retail field. He has been in almost continuous contact with NRA officials, and has done much in bringing them to a sounder and more equitable view of many problems bearing upon the professional and commercial phases of the drug store. Pharmacy owes him a debt far beyond its power to repay.

I should like to devote a few serious remarks to the so-called "labor controversy" that has sprung up in pharmacy as a result of Paragraph 7-*a* in the National Industrial Recovery Act. This paragraph provides for collective bargaining between employer and employee. I have publicly stated that I was opposed to col-

lective bargaining in pharmacy. I am certain that my position has not been fully understood. I am certain, too, that it has been deliberately misunderstood and misinterpreted by some. Some have attempted to make it appear that I was hostile to the interests of those employed in retail drug stores. While such criticism is utterly unfounded and directly opposite to my feeling in the matter, I shall make an effort to clearly present my views on this very important question.

By stating that I was opposed to collective bargaining in pharmacy, I merely meant to express the feeling that pharmacy could and should manage its own affairs. I meant to voice my opposition to bringing labor tactics into a professional field. In no sense did I mean, even by implication, to create the impression that I was opposed to a betterment of the conditions under which some employee-pharmacists work. Employee-pharmacists are members of the pharmaceutical profession, and should be entitled to all the benefits and privileges which come to members of a professional class. It is my honest and serious conviction that, in the long run, bringing labor methods into pharmacy will result disastrously to all pharmaceutical interests.

By this statement, I do not mean to enter upon a discussion of the merits of any labor movement when confined to a purely labor field. I do not claim to be sufficiently informed regarding general industrial conditions to voice the slightest criticism of the methods labor feels are necessary to its security and welfare. I am merely attempting to emphasize the dangerous consequences which are likely to follow when a professional calling is made to conform to policies and procedure which have been worked out in industrial and labor pursuits. I am convinced that there are basic and insurmountable objections to making pharmacy subject to the forces that control in a purely labor enterprize.

First of all, and this is of basic importance, no great distinction exists between pharmacist-employer and pharmacist-employee. In fact, the distinction which may be said to exist is purely artificial. In most cases, it goes no further than to impose greater business responsibility upon the employer. The employer must of necessity assume the burdens which go with ownership, and he must exercise sufficient authority to make his plans and policies operate. This is unavoidable if the store is to function in a satisfactory manner. However, I am certain that this does not constitute a disparaging distinction. Disparaging distinctions, if they do exist, should be brushed aside as inconsistent with the close relationship which must exist between the pharmacist-employer and the pharmacist-employee.

Pharmacist-employer and pharmacist-employee hold a unique relationship to each other. They come in close personal contact, and are engaged in exactly the same duties. The law requires that both shall conform to the same educational and professional standards. Both must measure up to the same degree of competency and skill. Each is a graduate of a recognized educational institution, and frequently it is the same institution. The law prescribes their duties, and confers the same privileges. Their daily work touches vitally the life and happiness of people. They are mutually dependent upon each other. The reputation of the employer is in the hands of his employee, and the reputation of the employee is in the hands of the employer. Mutual obligations and mutual responsibilities rest upon both. There would seem no possible justification for industrializing this

peculiarly intimate relationship. It would seem the one place where mutual confidence and respect should have full sway. Anything which disrupts or attempts to destroy this relationship comes very close to being inconsistent with the public welfare.

However, for fear this statement may be construed as submitting the ideal instead of what actually exists, let it be admitted frankly that there are many cases in which pharmacist-employees have not received the proper treatment or been accorded proper recognition with all that the terms convey. Studies by the NRA and others have shown inadequate pay, long hours and other unwarranted conditions. Employees are well within their rights when they insist that such conditions shall be remedied whenever and wherever they exist. Pharmacy, as a whole, should encourage the expression of honest opinions, and should make no attempt to escape a facing of the facts. If unfair conditions exist, no progress worthy of the name can be possible until the facts are recognized and dealt with as they deserve.

I believe that remedial measures can be applied within our own ranks. Nothing is required beyond an awakened professional consciousness. Organized pharmacy, as that term has been understood, should make every effort to learn the facts and to deal with them. It should be regarded as a family affair to be dealt with as family discipline demands. An immediate survey should be made of every drug store in the United States to ascertain the hours of employment and the prevailing pay for pharmacist-employees. While state and local pharmaceutical organizations might well carry out the survey, I suggest that the United States Government be requested to do it so that there can be no question as to its accuracy and fairness. This whole question goes to the very heart of professional integrity, and I believe the AMERICAN PHARMACEUTICAL ASSOCIATION should take the leading part in working it out.

Employee organizations, on the mere basis of recognizing the employee status, are, in my opinion, unfortunate. They serve to fan prejudices and perpetuate distinctions which should not exist at all. They also serve to accentuate differences and problems which may not be nearly so acute once the facts are known. It would seem much better to organize, if the employees really feel that separate organizations are needed, so that their professional status always stands out. My own feeling is that the existing pharmaceutical associations afford every necessary means of meeting their problems, and I urge that these bodies make every effort to coöperate as fully as possible with the employee-pharmacist in solving their mutual problems. However, in spite of what form the employee movement finally takes, there is a great responsibility resting upon both the employer and the employee. Neither should countenance any act by the other which is damaging to the inherent thing so necessary to both. Both sides should regard themselves as saddled with mutual responsibilities and as faced with mutual obligations. The welfare of the profession is the basic thing, and this is larger than any issue which either side can raise.

In any consideration of this subject, it should be borne in mind that retail pharmacists have felt their full share of the economic distress. All over the country, city and town alike, operating costs have steadily mounted while sales volume has dropped to unprecedented levels. Profits have disappeared, and hundreds,

if indeed not thousands, of retail drug stores have been operated at an actual loss. Undoubtedly, some employers, in pharmacy and outside of it, have taken advantage of the unfortunate period through which we are passing. However, I shall be much surprised to learn that the great majority of pharmacist-employers have not done their very best under most difficult and discouraging conditions. The facts, once they are ascertained, can be understood only in the light of circumstances.

Some reference should be made to pending food and drug legislation. At the 1933 meeting, the ASSOCIATION took the position of favoring all changes necessary to the protection of the public and as in opposition to delegating sweeping and unregulated powers in its administration. I have adhered to this position strictly. Personally, I was opposed to many of the provisions contained in the original Copeland bill. The very extensive and general powers conferred upon the Secretary of Agriculture impressed me as unnecessary to the proper protection of the public, and as inconsistent with many established principles of constitutional government. Some went so far, so I firmly believe, as to set aside basic concepts of the common law which have been cherished as essential to a liberty-loving people. I have always felt that it was unwise, and in most cases unnecessary, to place great undefined powers in the hands of administrative officials. It is a tendency in government which I think is definitely dangerous, and which I shall always oppose. If this country is to move forward in the realization of the great purposes to which it is dedicated, it must continue to be a government of laws and not of men.

From the very beginning, it has been my opinion that the present Food and Drugs Act should be amended, and nothing which has transpired has shaken this view. It has been said, of course, that the act was so hopelessly defective that it could not be amended so as to meet current needs. This, to me, is mere propaganda, and has no support from the actual facts. Following through the policy adopted by the Government is certain to throw out of gear State and Federal cooperation, and to produce a confused mass of contradictions which will plague us for years to come. It seems to me the most impractical means of meeting the situation. However, the Government seems committed to the impractical means, and I set forth this view simply to make my position clear.

I am confident that sounder legislation will result from the criticism which the various Copeland bills have received. There is no longer any intention of conferring arbitrary and unnecessary powers upon administrative officials. The whole job is being looked upon in a saner and altogether sounder way, and thus is certain to result in a much safer, and a much more effective piece of legislation. As a personal view, I desire to concur fully in Senator Copeland's statement that he would rather have no legislation on the subject than to accept a meaningless and spineless compromise. I believe there are great defects in the present act, and thus great public reasons for bringing it up-to-date. I agree with the desirability of every objective which these bills have sought. I regret that an arbitrary position by the Government, calling forth an equally unyielding attitude from the industries involved, has made the outcome very much confused.

In all of this, the ASSOCIATION should hold fast to certain principles. The Food and Drugs Act should be rewritten so as to include cosmetics, and to bring

advertising under federal supervision and control. No necessary power should be denied the enforcing agency. The public interest should be the paramount consideration. On the other hand, broad, sweeping and uncontrolled powers should be withheld as unnecessary to the purposes of the act, and as inconsistent with our theories of government. Industry should not be unduly harassed, but should be given every freedom consistent with the basic purposes of the act.

It is my belief that the AMERICAN PHARMACEUTICAL ASSOCIATION and the National Drug Trade Conference rendered a real service to the country in opposing certain features of the Copeland bill. Their position, presented in a forceful and logical manner, centered attention on the bill's dangerous provisions, and was the most potent influence in having them substantially modified.

This ASSOCIATION asserted the need for higher drug standards back in 1852, and since that time has stood steadfastly behind all efforts to bring this about by legislation. Many times its voice was the only one raised to this end. It stands to-day, I have no doubt, ready to coöperate in all efforts to protect the public by demanding the highest practical standards for foods and drugs. Its position throughout the present controversy has been in keeping with its high professional standing, and consistent with a sound regard for constitutional government. And this, let me insist, is vastly more important than extreme views whether they be advanced by overly zealous governmental experts or by selfish reactionaries in the food or drug industries.

It will be recalled that some few years ago the ASSOCIATION, in coöperation with the National Association of Boards of Pharmacy and the American Association of Colleges of Pharmacy, sought to have a comprehensive survey made of pharmacy to ascertain the basic facts underlying it. This survey was not actually begun because of the lack of funds. It is to be hoped that this undertaking can be carried out as promptly as possible. The time has come, I fully believe, when pharmacy must be seen in terms of social force if it is to keep step with the thought and tempo of the times.

We might as well realize that no permanent progress can be made unless we understand the meaning of pharmacy in the life of the day. It is to be remembered always that a new standard has been set up. The time has come when every effort will be judged and every activity measured in terms of its value to people. The present cry for the socialization of government, the socialization of medicine, and the socialization of industrial and economic forces is no more than an effort to reflect everything against the screen of human relations. Pharmacy cannot escape. It, too, must be measured in terms of its social significance.

I make these observations as supporting my belief that pharmacy has suffered because no effort has been made to fully understand and evaluate it.. Failure to understand it has resulted in a failure to adopt and follow through a sound and workable policy of thought and action. At no time has pharmacy coolly and deliberately set itself to the task of working out its problems, and directing its aim to some definite objective. Questions have been considered largely in their own setting, and with no regard to their bearing upon larger and more basic things. It seems to me that pharmacy has been content to live for the moment. There has been too much of a disposition to accept things as they apparently were rather than dealing with them in terms of actuality. Many times pharmacy has been

swept into positions utterly inconsistent with its real purpose. Such a policy, or rather the lack of one, has brought our calling close to professional extinction and on the verge of economic ruin. We too often have fallen a prey to our nightmares, and have been controlled by conditions created by our own folly.

As a result, every possible incongruity has grown up. As pharmaceutical education has advanced, there seems to have been a corresponding slump in professional morale. Pharmaceutical legislation has not controlled unethical practices, and the economic side of the drug store is in a deplorable condition. No relationship exists between the needs of the public and the number of drug stores. Drugs and medicines are sold in every type of retail outlet. Everywhere and on every hand is shown the results of a failure to meet our problems in a fearless and intelligent manner.

I, therefore, urge that every effort be made to complete a social study of pharmacy. I feel that real progress cannot be made until the facts are fully known. Such a study would furnish the basis for a more definite and practical educational program. It would answer all the questions underlying legislation. It would put at rest all questions arising from a lack of understanding of the real factual situation. It should be regarded as one of the major objectives of pharmacy, and should be undertaken and completed as promptly as possible.

The time has come for the ASSOCIATION to take the lead in an organized effort to more sensibly restrict the distribution of drugs and medicines to registered pharmacists. The conditions which now prevail are a reproach to our profession. It should be plain to all that the public will be better served and more safely served by placing the responsibility squarely in the hands of those whose training and experience fit them for this professional function. There is no justification, commercial or otherwise, for permitting such dangerous products to be indiscriminately and promiscuously sold.

However, the field is a difficult one, and must be approached after a careful survey of all of the factors involved. First of all, the court decisions, holding restrictive sales unconstitutional, should be carefully analyzed. It must be apparent that no legislation will stand court action that does not meet the objections raised by these judicial decisions. There are long-established principles of law which must be recognized in this matter, and the legislation must be drawn so as to conform to them. I mention this phase of the subject because, at the outset at any rate, the whole thing must be approached from a legal point of view.

This is no place for experimenting or for following out individual views. Most of the efforts which have been made to restrict sales have been ill advised, and the legislation proposed, in by far the larger number of cases, open to serious legal criticism.

The point to be borne in mind is that all efforts which are not legally and economically sound do much more harm than good. About the only contribution they make is to irritate and solidify the opposition. Already there is an effort being made, on a nation-wide scale, to organize all other dealers so that the present situation may be continued. There are large commercial interests traditionally opposed to permitting pharmacists the exclusive distribution of drug products. These interests are powerful and resourceful. Nothing but the most carefully thought-out plans have the slightest promise of success. The whole thing calls

for the services of informed and careful men. There is no place for the novice and enthusiast.

From the very outset, the ASSOCIATION has contended that drugs and medicines should be made available only through competent pharmacists. It has consistently opposed the doctrines that they were mere articles of merchandise, to be bartered and sold, subject only to the rules of the market place. In 1853, the ASSOCIATION made this historic pronouncement: "The first step to improvement is that storekeepers in boroughs and towns shall relinquish the sale of drugs; medicine is merchandise, and something more; to sell it in a common country store is to make it merchandise only." Drugs and medicine have no purpose other than meeting the demands of public health. They are merchandise in only a most incidental manner. They should be distributed only by pharmacists whose training, experience and sense of responsibility fit them for this important duty.

Too much time has already been lost, and the time for aggressive action has come. I recommend that the AMERICAN PHARMACEUTICAL ASSOCIATION reaffirm its time-honored position that drugs and medicines should be distributed by registered pharmacists only, and that a carefully selected committee be appointed to draft a model act to bring this condition about in every state.

There is a growing feeling that the whole body of pharmaceutical legislation is in need of a thorough revision. There is no doubt that much of it is obsolete and expressive of conditions and theories of fifty or more years ago. In structure, scope and basic principles, it is hopelessly out of step with the times. It still reflects the period when the handling of drugs and medicines was a purely merchandising and commercial transaction. These laws do not, as a rule, recognize broadly the great advances made in pharmaceutical education. They are based upon commercial practice rather than upon the public health service which pharmacy renders. The exceptions and exemptions in the pharmacy laws are so broad as to amount to a virtual nullification of many of the most important principles in these acts. To make matters worse, the exceptions have no logical foundation, and are based on nothing other than a selfish purpose on the part of certain powerful groups in the drug industry who have always insisted that their products be given unregulated distribution. There is no need to attempt an analysis of these acts at this moment. However, I do desire to express my feeling that the basic philosophy of pharmaceutical legislation should be responsive to current conditions. I strongly urge that it be made more aggressive and more in keeping with the spirit and tempo of the times. It should be based entirely upon the public health importance of drugs and medicines, and not at all upon purely business or commercial considerations. I recommend that the ASSOCIATION give serious study to this matter, and that some agency be set up to study pharmaceutical legislation so that it may be modernized and made consistent with the advances being made educationally and professionally.

I want to express my deep interest in the efforts now being made to bring the public health profession closer together. Nothing but good can come from such a course. In some sections, this has not gone beyond medicine and pharmacy. In others, notably in Kansas and the Pacific Northwest, medicine, dentistry and pharmacy have consolidated their influences, and have become committed to the advancement of public health as an organized and official policy. The advantages

from such a course are many. The program of one will have the endorsement and support of all. The various professions will come into more intimate relationship, and a sounder and more mutual understanding is certain to result. I urge the pharmacists of every state to participate and coöperate in all such efforts.

The movements to make medicine more familiar with the United States Pharmacopœia and the National Formulary are entitled to whole-hearted pharmaceutical support. The more medicine relies upon official preparations, the more pharmacy will advance as a professional pursuit. This effort should include the students in the medical schools. While the medical curriculum has paid little attention to the practical sides of medication, and has sent the graduate out to practice poorly trained in this important subject, there is evidence that the pendulum has begun to swing in the other direction. One great medical school has recently placed its department of pharmacology in the hands of a pharmaceutical expert. It is to be hoped that this is the beginning of a national trend. The more physicians know about drugs and medicines, the more they know of the U. S. P. and N. F., the greater their value to the public. Pharmacy should coöperate to the fullest possible extent in placing the official standards before the medical profession. No doubt, it would be wise to prepare digests of the official products, with due regard to prevailing medical theories, and make them available for wide distribution to medical men. This is a work peculiarly within the scope of this ASSOCIATION'S activities, and should be done as promptly as possible. With the active coöperation of the Committees on Revision of the United States Pharmacopœia and National Formulary, this should not be an unduly difficult or laborious task.

The question of ASSOCIATION membership has become of critical importance. During the past year, I devoted much time and considerable expense to efforts for building up membership. Literally hundreds of letters were written to persons whose names were furnished by interested persons in the various states. The results, as evidenced by new applications, were most disappointing. Of course, there are many reasons why this year should not be regarded as an average year. In many sections of the country, the depression was most acute. Nation-wide drives by other organizations also diminished the effect of my personal appeal. However, I am constrained to feel that, even in normal years, the membership cannot be built up by anything less than an organized and systematized effort. It almost emerges into a separate ASSOCIATION activity, which goes beyond mere routine. It requires the earnest coöperation of the membership as well as the active support of all groups concerned with professional pharmacy. If the ASSOCIATION is to adequately represent pharmacy and to speak for it in authoritative tones, it must be given greater numerical support. It must be so strengthened that none can assail its position or question its views. Professional pharmacy demands the services of a strong national association, and such an association should be given strong and consistent support.

I think the ASSOCIATION has not, in times past, seen the advantages of making membership in the ASSOCIATION a badge of distinction. Membership in the ASSOCIATION should be synonymous with professional standing. It should bring prestige. It should be something to which pharmacists would aspire. In order that this conception may be realized, I am convinced that membership in the ASSOCIATION should be made more selective. It should be based upon merit as a

major consideration. If pharmacy is to persist as a professional calling, and pharmacists be accorded recognition as an educated group, it must, in the ultimate, depend upon that relatively small number of earnest souls who refuse to be blinded by the flare and glare of the passing scene. In spite of its apparent conflict with prevailing doctrines of social policy, the world will be led back to safety and security, not by the rank and file, but by a few men whose souls have refused to be tarnished by the dust kicked up by the popular hue and cry.

In line with this thought, a determined effort was made to bring the ASSOCIATION directly to the attention of all the graduates of the colleges of pharmacy in this country in the past few weeks. Through the fine coöperation and courtesy of the deans, lists of the prospective graduates were furnished. To each of these was sent a note of congratulation, and a dignified invitation to become members of the ASSOCIATION. These invitations were signed by the president, secretary and chairman of the Council. I do not know how successful the effort may be, judged only by the number of applications, but I am convinced it should be made a regular ASSOCIATION activity, and I so recommend. The response of the colleges was most inspiring. Nearly every dean expressed the feeling that the effort was most timely.

As a wider plan for membership on constructive and basically sound lines, I suggest, first of all, that the colleges of pharmacy be asked to award a certain number of memberships a year. This number should not exceed eight in the larger schools, and proportionally in the smaller ones. These memberships should be awarded on the basis of scholarship considered in connection with whatever factors the schools should see fit to include. In making this suggestion, let it be understood that I am fully aware that pharmaceutical education has given loyal support to the ASSOCIATION. I am merely asking their continued support so that each year the best of their graduates may come into the ASSOCIATION. It is my thought that the wider the influence of the ASSOCIATION, the greater the prestige of the schools, and the more worth while the profession. As a matter of information, it should be stated that a number of colleges have been awarding such memberships for a number of years. In these institutions, the memberships are given in reward for scholastic standing, and have proved an incentive for higher scholarship.

I also strongly suggest that each pharmaceutical association be urged to cooperate in a similar manner. The larger associations might well be asked to grant ten memberships, and the smaller ones accordingly. These state memberships in the A. PH. A. should also be based upon some meritorious qualifications. Simply as indicating the basis of the awards, I suggest that those obtaining the highest marks in the State Board of Pharmacy examinations be recommended for membership.

The State Boards of Pharmacy might work out a similar plan as well. I can see some advantages from awarding membership in the A. PH. A. to the one making the highest mark in the examinations. It would be a recognition of merit, and might stimulate increased interest in the prospective registrant. It may be said, of course, that the funds of the boards are public, and thus not available for such purposes. I believe it can be shown that contributing to those agencies engaged in the betterment of professional practice is well within the letter and spirit of the pharmacy acts.

I also urge that the attention of the pharmaceutical press be directed to the importance of building up the membership in the A. PH. A. along constructive lines. I believe each pharmaceutical publication might find it desirable to award membership in the ASSOCIATION to those contributors presenting the best articles during the year. Simply as a recognition of merit, such a plan might well raise the standard of much that appears constantly in the press.

In addition to these suggestions, I think it high time the ASSOCIATION took notice, officially, of the vast amount of material appearing in the pharmaceutical press. Week after week, month after month, year after year, the press grinds out millions of pages of pharmaceutical interest. These publications present the stuff from which pharmaceutical opinion is crystallized, and out of which is constructed the current pharmaceutical policies.

We have been woefully wasteful and neglectful in this particular. No effort has been made to influence pharmaceutical journalism, or to move it in the right direction. It represents a vast power for good, and yet, so far as we have been concerned, it has been no more than a moving current which soon becomes no more than water over the dam. The force, power and significance of the pharmaceutical press should be recognized by the ASSOCIATION, and some basic attempt made to have it serve, broadly and constructively, the great objective toward which we aspire.

In order that the press may be stimulated to finer service and higher ideals, I recommend that the ASSOCIATION award a medal, yearly, to that publication meeting a certain standard of excellence. There is no reason why this medal should not become to the pharmaceutical press what the Pulitzer prize is to the great daily press. It should be awarded for merit, and for the general excellence of its presentation. The award should be made a pharmaceutical occasion, comparable in importance and dignity to the Remington Medal award.

Now, just how, and by what means can these membership plans and suggestions be worked out? I have given careful thought to this matter. I have canvassed the whole pharmaceutical field, and, after every effort, have come back to this conclusion: There is no group in American Pharmacy more able and better qualified to work out these plans than the former presidents of this ASSOCIATION. These men represent maturity in judgment, and a wide and varied experience. They embrace, in an unusual degree, the essentials of leadership. They measure up to a high educational and professional standard. They have been in close touch with the ASSOCIATION'S affairs, and know its needs and objectives. Geographically, all sections of the country will be recognized, and virtually all branches of pharmacy. It is my recommendation that the former presidents of the ASSOCIATION be formed into a permanent body to be styled, the A. PH. A. Commission on Membership and Awards. This commission should organize by the election of its own officers, and should be given a permanent place in the American Institute of Pharmacy, and given adequate financial support as soon as this can be done.

In making this recommendation, I am mindful of the fact that the past-presidents may feel that they have earned the right to retire. In answer, let me state that they have been greatly honored by this ASSOCIATION and that this alone is sufficient to place additional burdens upon them. But my recommendation is based upon an honest conviction that they are the best qualified for this highly

important task. Upon its success may be said to rest the future of the ASSOCIATION. I urge them to join hands in this new endeavor.

In conclusion, let me pay my deep personal tribute to Doctor Kelly and Editor Eberle for their untiring efforts in behalf of this ASSOCIATION. Only those permitted to work intimately with them can know their fine loyalty, their inspiring devotion, and the high ideals they bring to their tasks. Pharmacy, in its widest phases, has cause for congratulations because of the earnest work these men are carrying on. May they live long, and enjoy the blessings of good health and happiness!

To the ASSOCIATION and its membership, collectively and individually, I express my sincere thanks for the confidence and trust reposed in me. To head this great ASSOCIATION, even for a brief period, is to enjoy the greatest distinction within the power of pharmacy to bestow. To have been thus honored at your hands will ever remain my most cherished memory.

ADDRESS OF THE CHAIRMAN OF THE HOUSE OF DELEGATES.

BY P. H. COSTELLO.

To the Members of the House of Delegates of the American Pharmaceutical Association:

A welcome opportunity, it is for us who are interested in the welfare and progress of American pharmacy, to figuratively join hands once again at this annual meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION here in Washington.

Members of a great profession devoted to the service of humanity, we, who are gathered here, hold a keen interest in national developments not only as they affect us as patriotic and loyal American citizens but, and naturally so, as they touch upon the course of our own profession. Representing individual pharmacists in this changing order our ASSOCIATION must do its part. Let us hope, therefore, that this meeting in our Capital City will bring about a better appreciation and understanding of the value of Pharmacy and the great purpose it serves.

We can now point with a great deal of pride to our headquarters building, *The American Institute of Pharmacy*, located in this city. It is a monumental achievement. It is entirely fitting and appropriate that an organization, such as ours, should have as its headquarters a building such as this, and it is also proper that it should be located in the Capital. The past several months should show the wisdom of the new location of our headquarters because events, which affect all of us, have been happening daily here in Washington with lightning-like rapidity. Any other location would have proven a mistake and a handicap to our future welfare and progress.

It is a privilege, possibly it may become a distinction, for those who have availed themselves of this opportunity, to be present at the dedication of our building during this convention. The founders of the AMERICAN PHARMACEUTICAL ASSOCIATION intended the organization should carry on. Possibly they visualized some of the progress and achievements that were to come, but it is hard to assume

any one of them ever dreamed of an organization such as we now have with a headquarters building of our own in this city. It should be an inspiration to us, but probably more, and let us sincerely hope so, that it may prove to be the beginning of a new era for Pharmacy. This will depend upon ourselves.

It has been said, and the statement remains unchallenged, that the AMERICAN PHARMACEUTICAL ASSOCIATION has promoted the highest principles of professional pharmacy for more than eighty years. In this regard, it is our good fortune the organization has succeeded in a fair measure to accomplish what it set out to do. To rest on our oars now, satisfied with the accomplishment thus far, would gain us nothing. Nor can we long continue to maintain the prestige of our profession unless we are guided by past experience and make it possible for ourselves to render a greater service in the future.

At present we find many conflicts of thought, ideas and endeavors among pharmacists, evidenced most notably by their public expressions. What is more significant is the extreme differences of their opinions and viewpoints. Ours is a very complex profession when one considers all phases of pharmacy and pharmaceutical activity. Whether we are to strive for the higher professional attainments alone, or whether we shall seek to bring all the conflicting groups together for a more united and stronger pharmacy under one association, the future will decide. Any program that is not all-inclusive, or neglects the welfare of some, will fail.

P. H. COSTELLO.

During the last few years we have been led to believe that a large majority of the more than fifty thousand drug stores in the nation have suffered from one cause or another. It is not strange at this time that a majority of retailers are mostly concerned with their economic welfare, fair trade practices and profit. Codes and commercial problems are their first concern and their plight cannot be ignored by any organized group of pharmacists. Upon their success to emerge from their dilemma depends not only their own welfare, but also that of many more employed pharmacists. The failure to stabilize retail pharmacy will result in its downfall.

Even between the separate national organizations, there must be coöperation. There can be no distinction or classification in Pharmacy. One may be able to render a higher type and a more skilled professional service in an exclusive prescription laboratory than is possible in some remote area in an ordinary drug store. Just as those employed in the first instance are especially qualified and equipped, the owner of a pharmacy in the remote region may not be. Yet each renders a pharmaceutical service, and the service rendered by the latter may be quite as valuable to those depending upon him as in the former case. We may adopt minimum standards for equipment, as we have adopted minimum qualifications for pharmacists and minimum standards for drugs; but such a forward step should not deny any community the type of pharmacy it can support and maintain.

I desire to quote from a tribute paid to pharmacists by the Governor of my state in his last Pharmacy week proclamation:

"This is a profession which quietly, and without what we know in our modern vernacular as 'ballyhoo,' has devoted itself to the preservation of the nation's health; the profession which numbers among its followers some of the real heroes of contemporary history.

"When I say 'heroes' I mean the druggist in the little Arkansas town who was called upon by his fellow-citizens to join them in taking to the hills, while the flooding waters of the Mississippi swirled on the floor of his store. This druggist's answer was to move his medicines to the higher shelves and lay a new floor composed of boards laid from counter to counter. The people needed medicines, and he stood by, preserving them from the greedy river.

"I mean the pharmacists, numberless, who during the great 'flu' scourge, abandoned sleep to stand unseen in the back of their stores to fill the unprecedented rush of prescriptions. There is no doubt but that a great number of them sacrificed not only health, but life, in so doing.

"I mean, also, and perhaps with even warmer gratitude, because I have been closest to him, the small-town druggist who has helped so materially to build up North Dakota; the kindly citizen who stands ready to do anything, from dispensing cough syrup to giving ether while the country doctor performs an emergency operation.

"Millionaire philanthropists are lauded in headlines every time they part with one of their many millions to endow a college or camp. Some day, I hope to see in the biggest, blackest type there exists a list of those pharmacists whose fortunes were slowly, unspectacularly, dissipated in the form of little bottles of cough syrup and croup vaporizers to save the lives of babies whose parents were too poorly paid, and often too harassed to even give thanks."

Among the delegates to this body, and members in attendance at this convention, are most of the leaders of Pharmacy. I am confident they have given, and will continue to give, their best in a fearless and sincere effort to carry out a sensible policy and program that will enable Pharmacy to progress. And may each one of us take home with us from this convention something of value to our state and local associations.

In closing, I want you to know I am not unmindful of, nor ungrateful for the honor and privilege you have bestowed in permitting me to serve as Chairman of the House of Delegates this past year. I deeply appreciate it. Thank you.

ABSTRACT OF PAPER, SCIENTIFIC SECTION, A. PH. A.

"Further Studies on Psyllium (illustrated with lantern)," by H. W. Youngken.

Plants with mature fruiting spikes and seeds were obtained by the author from growers of commercial Psyllium seed in Spain and France, identified by comparison with authentic herbarium sheets and authoritative descriptions in the literature. The seeds were separated from these and compared with commercial lots of Psyllium on the American market, thus permitting certain identification.

The seeds of *Plantago Psyllium*, *Plantago arenaria* and *Plantago Cynops* are compared as to physical characteristics, histological details, relative weight and mucilage swelling capacity.

It was found that most of the samples of commerical Spanish Psyllium examined by the author were yielded by *Plantago Psyllium*, a few by *P. arenaria*, that most of the recent French Psyllium samples were yielded by *Plantago arenaria*, a number of *P. Psyllium*, while occasional lots represented varying mixtures of *P. Psyllium*, *P. arenaria* and *P. Cynops*. It was also ascertained that the seed of *Plantago lanceolata*, described by the author in a previous article is being offered to the American trade both as Spanish Psyllium and German Psyllium as well as torrefied abroad and mixed with untorrefied seed of *Plantago arenaria* and offered in this combination to the French and American trade as French or Black Psyllium Seed.

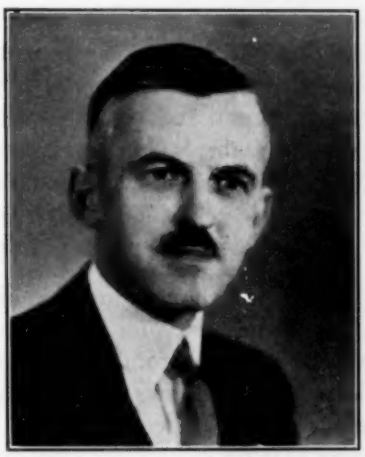
ADDRESS OF THE PRESIDENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

BY C. THURSTON GILBERT.

Mr. Chairman, Members of the National Association of Boards of Pharmacy and Guests:

It is my duty and also a pleasure to address you as your president on the thirty-first anniversary of our Association. This honor befalls few men and comes but once during the span of life.

We are privileged to meet in the greatest Capital on earth, the city that has imbued one hundred and twenty million people with hope of a *New Day* and a *New Deal.* Washington is the one city that every American longs to visit. The historic, scientific, governmental, judicial, political and economic phases of our daily life are all exemplified here. We are particularly fortunate to meet in Washington at a time while Congress is in session, which presents the opportunity of witnessing its activities from the galleries of the House and the Senate.



C. T. GILBERT.

It is customary for the president to present to the membership an outline of the activities of our Association for the year entrusted to his stewardship. It has been my endeavor to carry out these duties and responsibilities in a manner that would best serve our Association. I hope in this particular that I have given satisfactory service. My administration has been short, owing to the change in the convention date. Therefore, I shall not burden you with a lengthy address but shall confine myself to the more important matters only.

AMERICAN INSTITUTE OF PHARMACY.

On Wednesday morning the pharmacists of this country will dedicate the greatest monument that has ever arisen to glorify our profession. After many years of careful study and planning, Pharmacy now has a *Home*, truly representative of our profession and of which we may be proud—a source from which our centralized efforts in the future may emanate. It will be the high privilege of those present at this convention to witness the dedication of this temple of Pharmacy.

ASSOCIATION ACTIVITIES.

For several years past, our organization, not unlike other associations, has been confronted with a lack of capital to carry on the several activities which we had undertaken to keep pace with the rapidly changing conditions affecting pharmaceutical education and registration. We have had to curtail some of these activities until the economic situation returns to normal. We all feel that this time will come soon.

Like individuals, business men and other associations, we have had to readjust ourselves to a greatly reduced income. During the past ten months, we have demonstrated that this can be done, for we have carried on the most essential activities without drawing on our capital account. From present indications, we shall close our fiscal year on June 30th without a deficit. The reports of the Executive Committee, the secretary and the treasurer will give you the details. We have had to leave some things undone that I should have liked to have seen done but, in common with the rest of the world, we are learning some valuable lessons.

More of the business details will be covered in the report of the Executive Committee by Chairman W. M. Hankins. The mid-year meeting was again omitted, the annual meeting of the Committee being held here in Washington just prior to the opening of this convention.

No association can function successfully as a national organization through its officers alone. Although this has been a short year, your president has found little time for anything else than the affairs of the Association. However, at this time, I wish to pay special tribute to the many Committee chairmen, District chairmen and fellow officers for the loyal and whole-hearted coöperation that they have displayed. It is this loyalty and this devotion that has made the N. A. B. P. one of the outstanding organizations in Pharmacy.

DISTRICT MEETINGS.

My first thought in assuming the presidency was to impress upon the membership the necessity for and importance of district meetings. The loyal response which I received from the vice-presidents in response to my appeal for meetings has been most gratifying to me. Eight of the nine districts promised a meeting for this year, and these meetings would have materialized were it not for the fact that the early date for our annual meeting upset the plans of several of the districts that had made plans for meetings in April or May. These plans were abandoned so as not to interfere with convention attendance.

On March 12th and 13th, I had the pleasure and good fortune of attending the meeting of District No. 2 in Baltimore; and on March 14th and 15th, the meeting of District No. 1 at Boston. Certainly no person who listened to the programs developed at these meetings could be otherwise than impressed and encouraged by the high purposes and aims of these meetings.

On March 21st and 22nd, District No. 6 held a meeting at Fort Worth, Texas; on March 26th and 27th, District No. 7 met at St. Petersburg, Florida; and on April 16th and 17th, the first meeting of District No. 8 since 1924 was held at Salt Lake City, Utah.

One of the encouraging things about these meetings is the ever-increasing numbers who attend. Each year the interest manifested in these meetings swells the attendance record to a new high point.

LEGISLATION.

Comparatively few state legislatures were in session. In addition to the few regular sessions, there were a number of extraordinary legislative sessions.

The primary aim of this Association in so far as legislation is concerned is to have the pharmacy law of every state in our nation require college graduation for entrance to board examinations. It has taken nearly thirty years of patience to achieve the high standards under which we now labor, and at this time only eight states have not as yet enacted college requirements. We should therefore lend every effort to assist these member states in enacting this very necessary and desirable legislation.

Other states have college prerequisite laws that are not satisfactory, as they require only a year or two of attendance at a recognized college instead of graduation from the four-year course now prescribed by the Syllabus. These states should also endeavor to amend their laws as soon as is expedient.

In the past, we have had success by setting a certain date as the goal when a certain thing shall be accomplished.

> *Therefore*, I recommend that every member board at present without a college *graduation* requirement immediately and seriously undertake to work for the enactment of such legislation, setting the year 1940 as a goal when every board shall be operating under a compulsory graduation requirement.

Again it is the duty of the president to remind the membership that there are forces constantly at work for the consolidation of boards of pharmacy with other professional and even occupational boards into licensing departments or bureaus. This type of legislation should be fought vigorously by our boards when it is proposed, also soliciting help from the other professions that are involved. In states where consolidation has already been accomplished and is not functioning satisfactorily, every effort should be made to separate the Pharmacy Board from such ties. Protection of the public welfare is the first duty of the Pharmacy Board and when the system under which the board is operating places the public welfare in jeopardy, then it becomes the duty of the board to call attention to the condition so as not to become a party to the act.

The N. A. B. P. having gone on record as favoring the abolition of the grade of *Assistant Pharmacist* certificate should take a further forward step by outlining a definite plan for accomplishing this. Strong opposition should be made to any attempts to grant a higher grade of license to assistant pharmacists by legislative amendment than that originally intended. "Professional service cannot admit graded responsibility."

> *Therefore*, I recommend that the Legislative Committee be instructed to make a study of the problem of abolishing the assistant grade of certificate under the various state laws and present a definite outline or uniform plan for accomplishing this, without granting to the holders of outstanding assistant licenses any privileges other than those originally conferred by the law.

RECIPROCITY.

Each year the president devotes some time in his address to this subject. And the theme is usually *Tolerance*, as it rightly should be. The benefits of reciprocity have again been proved this year by the slow but steady increase in the

number of applications issued, thus providing pharmacists with an opportunity to practice their profession under more favorable conditions and habitats during these changing times of economic readjustment.

Possibly at no time during the existence of the N. A. B. P. have more friendly relations between the member boards prevailed. Reciprocity is in effect between all the states except California and New York; also with the District of Columbia, Alaska and Puerto Rico—a total of 49 active member boards. Inasmuch as both New York and California are college prerequisite states, they should become active members of the N. A. B. P. May these two great states, separated by the broad expanse of our country, soon answer the call and join with us in our problems and joys. Our responsibility is to make every effort to get them to join the ranks of this great *National Association of Boards of Pharmacy.*

PROFESSIONAL PHARMACY.

It has been decreed, and properly so, that Pharmacy shall be classified as a profession. Certainly the work as taught in our colleges is professional. Now that we demand four years of college and offer a degree in science in Pharmacy, the time has come to develop a wider field of professional practice.

We are all familiar with the complaint that there are too many commercialized drug stores and that the graduate has difficulty in finding employment in professional pharmacies. May this condition not be due to the fact that for many years we have been registering as pharmacists persons whose only credentials were four years of training in a more or less commercial store? The very fact that our graduates are looking for professional openings is an indication of what we may expect in the future. I therefore feel that this Association in coöperation with the AMERICAN PHARMACEUTICAL ASSOCIATION should lend them encouragement by making every effort to develop more professional pharmacies. The strictly professional pharmacy is already flourishing in the larger centers. But we need the same type of pharmaceutical service in the smaller centers which cannot support it without adding some commercial lines. If a high standard of professional service is rendered and stressed, there can be no harm in limited merchandising of allied lines. The N. A. B. P. has an opportunity to perform an important service for both pharmacy and the public by defining and designating pharmacies that can be safely entrusted to render such service.

PHARMACY EXHIBIT CENTURY OF PROGRESS.

Pharmacy received its major publicity of this age the past year at the Century of Progress in Chicago. This exhibit was visited by millions of people from every corner of the globe and was invaluable in stressing the service pharmacy renders in the field of public health. The exhibit is to be continued in 1934 and its value further extended.

This Association should feel particularly proud that the man whose efforts made this exhibit such an outstanding success is one of its officers. Mr. Christensen has already been honored for his work in behalf of the exhibit but will receive greater mention as the years go on and the value of the exhibit is realized. Every pharmacist in America owes it to himself and to his profession to visit the exhibit before the Century of Progress passes into history.

HOME OFFICE.

Those members who have not visited our home office should avail themselves of the opportunity whenever possible. Only those who have done so can visualize and appreciate the amount of work that is handled there each day and the competent and efficient manner in which thousands of inquiries are dispatched. The home office is a place where all of us have access to statistical data on all phases of the profession which it has taken many years of labor and study to compile. The information is available to those who ask for it.

The personnel is of the highest efficiency and can at all times be depended upon to give the maximum of service. They are to be commended for the work they are doing for Pharmacy and the Association.

IN MEMORIAM.

Each year it becomes the sad duty to report the names of our beloved members that have laid down their tools and answered the call of Him who reigns in the place from whence no man returneth. Death must come to all of us. During the past year, the following members have passed into the Great Beyond:

Thomas C. Coltman, Colorado
Oscar C. Draper, Delaware
John E. Jackson, Virginia.

CONCLUSION.

I now wish to express my deep appreciation to you for conferring upon me the highest honor within your power to bestow—the presidency of the National Association of Boards of Pharmacy.

I have tried to serve you in a manner that would reflect credit upon the Association which is nearer to my heart than any of the multitude of bodies with which I am affiliated.

If I have been successful in only a small way and have contributed something to the upbuilding of the N. A. B. P., I shall feel well paid for my efforts.

To my successor, I wish a full measure of success and happiness, and I pledge him my loyalty and support in his administration of this high office.

To-morrow, when I lay down the gavel of office and return to the ranks, I will deem it a pleasure and a privilege to continue to work for the lofty ideals of the National Association of Boards of Pharmacy.

ABSTRACT OF PAPER PRESENTED BEFORE SCIENTIFIC SECTION, A. PH. A., WASHINGTON MEETING, 1934.

"The Stabilization of Syrup of Ferrous Iodide, U. S. P. X," by William J. Husa and Lyell J. Klotz.

A study was made of the mechanism and rate of decomposition of ferrous iodide solutions and syrups. The decomposition involves a partial hydrolysis of ferrous iodide, oxidation of iodide ion and oxidation of iron. The oxidation of iodide ion was found to be a reaction of the first order with a specific reaction rate of 3.2×10^{-5}. An intensive study was made of the deterioration of Syrup of Ferrous Iodide, U. S. P. X. It was found that a stable syrup may be prepared by using dextrose in place of sucrose.

ADDRESS OF THE PRESIDENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY.

BY L. D. HAVENHILL.

Last August, in Madison, when you chose me as the recipient of the highest office that this Association has to bestow, I can assure you that no one could have been more surprised than myself.

To serve as your president has been not only a great personal honor, but also an honor to the school which I represent. I desire at this time to express my appreciation of the hearty support that the members and officers of this Association have given me during the past year.

In accordance with the provision of the constitution of this Association that the president shall present an annual address, I have chosen as my subject, "The Education and Training of the Modern Pharmacist."

Thirty-four years ago to-morrow, May 8, 1900, the founders of this Association, numbering twenty-one charter members, met in Richmond, Virginia, and organized the American Conference of Pharmaceutical Faculties. Ten years later, in May, the Conference again met in Richmond, five members stronger at the end of the decade than at its beginning. Ten years later, also in the month of May, we met for the first time in the city of Washington. At this time our membership had increased to forty-five. In 1930, May was again chosen as the month of meeting, but this time Baltimore was the favored city. Our membership had increased to fifty-seven.

L. D. HAVENHILL.

Now, after four additional years of rambling, we are, after an absence of fourteen years, assembled in the city of Washington for the second time. Our membership still numbers fifty-seven, which, considering the four trying years, I feel augurs well for the continued development and stability of pharmaceutical education.

I am glad that it is our good fortune to be in the nation's Capital again in this glorious month of May. For somehow, whether cold or rainy, or radiant with the warmth and gladsome sunshine of Spring, May outstrips all of the other months of the year as an auspicious time for annual reunion.

We have come back to a new and more beautiful city of Washington and fortunate indeed are we who are privileged to attend this thirty-fifth annual meeting and witness the dedication of the now realized dream of American Pharmacy—the American Institute of Pharmacy.

As we look back through the vista of more than a third of a century, we are saddened to note the rift in our ranks caused by the passing of so many pioneers and early workers in the cause of pharmaceutical education. If my information is correct, Dr. Edward Kremers is the only member now with us who was present at

the memorable first meeting in Richmond, Virginia, thirty-four years ago, who has maintained an uninterrupted directorship of a member college. Time has whitened his hair but has made no impression on his indomitable will and purpose to carry forward the campaign for a finer and broader pharmaceutical education which he began so long ago.

After many years of aggressive planning this Association has finally reached a place in its educational program upon which truly to build a profession of pharmacy. The minimum four-year course is at last a reality and I believe has come to stay permanently in one form or another. While the development of the four-year course has been slow, its progress has been steady. In 1927, at the time of its adoption, few, if any, of our members anticipated the financial situation that we would be facing in 1932. Many readjustments have been necessary and one might be pardoned for believing that 1932 was an inopportune time for the inauguration of this important step in our program of educational expansion.

We are in the midst of a world depression and by way of depressing you still more you may recall that I sent you a questionnaire, not too lengthy a one I hoped, to answer. I should like to consider with you for a few minutes some of the answers to the questions which I here propounded. Let me first thank you and say that the responses I received were unusually prompt, frank and complete. Such a response is remarkable and can only mean that those in authority appreciate the meaning of coöperation and are willing to give their time in whatever way appears to be helpful to the Association.

The replies to the first part of Question 1, "Has your school been seriously handicapped by diminished financial support?" were as follows: eleven, yes; fifteen, to some extent; twenty-eight, not seriously. District No. 9, the Pacific Coast states, as a group were the least affected, all reporting that they were not seriously handicapped.

The replies to the second part of this question, "If so, how have you met this situation?" indicate that the condition has been met to a great extent by salary reductions ranging on the average from 8 to 20 per cent but in some cases reaching 50 per cent. Strict economy is being practiced and many items from the customary budget such as traveling expenses, advertising, special printing, library funds, research, new buildings, special apparatus, assistants, etc., have been either greatly reduced or eliminated. In a few instances the decreased salary budget has necessitated dropping some junior members from the faculties. Compensating factors have been funds and equipment in reserve, gifts, increased tuition and to some extent decreased enrollments.

Many of the schools reported that their resources were diminishing and that drastic retrenchment would be necessary if present conditions were to continue over a period of several years. With the decided upward trend in the cost of laboratory necessities now manifest, this concern may become real, indeed, to all the schools. It is perhaps timely for an older member, for whom this is not the first depression, to remind the younger ones that many wonderful achievements and many brilliant scientists in the past have issued from laboratories in which the equipment was meager indeed. Necessity, said to be the "mother of invention," may in the near future develop some talent in our student-body which otherwise would perhaps have lain dormant.

Inspiring and resourceful instructors will triumph over whatever befalls. A striking feature was brought out in these replies, that I believe illustrates in a vivid way the professional spirit of pharmacy, a spirit that one could wish was more in evidence elsewhere in the world to-day, was that the faculty members in general accepted deeper cuts in salary in order that funds might be available to secure essential equipment and instruction for their students.

One of the most serious situations that may arise in the larger institutions of learning will be an attempt at reorganization under the guise of economy in which the school of pharmacy will be merged with other larger schools or departments and thus be deprived of its autonomy and professional organization. Some six or more schools have already changed or are contemplating changes in their organization. It is to be hoped that none of these will result in conditions that will be inimical to the best interests of pharmaceutical education. A recommendation, therefore, is offered to the effect that this Association view with disfavor economies of this kind and that the chairman of the executive committee register vigorous protests to any and all instances of this character.

A classification of the replies to Question 2, "If you have suffered a decrease in enrollment, especially of freshmen, in the past two years, to what do you attribute it?" indicates that thirty-four schools had a decrease in enrollment amounting to 30% or more in some instances. Eight schools had maintained their freshman enrollment and twelve schools had an increase in freshman enrollment, especially in 1933. In some cases this increase was more than 100%.

The depression was generally blamed for the decreased enrollment, but local conditions, increased tuition, acceptance of only approved high school graduates and lack of full support by the respective boards, were also causative factors.

It was inevitable that the four-year course should be held responsible to some extent, especially when the increased length of the course is considered in the light of unfavorable business outlook, and the financial embarrassment of prospective matriculants. However, only six schools believed that it was more than indirectly responsible and sixteen schools reported specifically that as a causative factor it was negligible.

The answers to Question 3, "Is there active opposition to the minimum four-year course in your state and if so, from whence does it emanate?" should be received by this group with considerable satisfaction. Forty schools report no opposition. Several of the schools that adopted the minimum four-year course prior to 1932 report that they are now actively supported by the pharmacists and the boards. This should serve to encourage those schools that did not adopt the minimum four-year course until 1932 and that are at this time facing the expanding curriculum with decreased enrollment and a decreasing income. Fourteen schools report some active opposition from board members and individual pharmacists who seek pharmacy only as a trade, also from financial backers and alumni of some competing schools whose standards are below those of the A. A. C. P.

The replies to Question 4, "From what sources do you encounter the greatest inertia in the operation of the minimum four-year course?" indicate that the program is neither wholly nor graciously accepted by druggists who might be characterized as follows: Those who fear they will have to pay more to their clerks, those who have no appreciation of the value of an education, those who have failed

to note that the apprenticeship system began to lose its effectiveness one hundred or more years ago, and from the "has-beens" of the non-professional type.

The response to Question 5, "Kindly give me all the information possible concerning 'cram schools' and other schools having requirements for entrance and graduation below the A. A. C. P. requirements, that are functioning in your state or immediate territory," indicates that there are a number of the so-called "cram" schools still functioning. They necessarily derive most of their support from the states where only drug store experience and the ability to pass the board examination are required of registered pharmacists. There are now, according to report, only eight states without a college prerequisite (Arizona, Massachusetts, Missouri, Nevada, New Hampshire, New Mexico, Tennessee and Vermont).

Recent printed matter issued by one of these "schools" in the Middle West, states that it has enrolled more than five thousand students since 1910, one thousand of whom were enrolled between 1929 and 1932. The explanation for this sharp rise in the attendance curve is that most of the boards in the district have announced a college prerequisite to take effect in the near future. It is reported that this school is a one-man, one-room institution without equipment, term six weeks, tuition one hundred dollars payable in advance and non-returnable.

There are ten schools listed in Guidance Leaflet No. 14 which are not members of the A. A. C. P., and a private school and college directory lists a score or more additional ones. Apparently, there has been but little change in the total number of pharmacy schools since the list compiled by Prof. W. L. Scoville and published by the American Conference of Pharmaceutical Faculties, in 1905.

That there should still be schools that do not meet the A. A. C. P. standards, offering pharmaceutical instruction in any of the states is indeed unfortunate for professional pharmacy. Surely the supporters of such instruction have given but little serious attention to the mass of material collected at considerable expense in time and money and rendered available as *Basic Material for a Pharmaceutical Curriculum*. The material in this book ought not to be restricted to curriculum builders. It is valuable for every one who believes in professional pharmacy and wishes to encourage it. There should be a copy of this book in every drug store—at least 65,000 copies, readily available for study and reference—but the fact is that after seven years less than 1% of this number are in use.

When the question of adopting the minimum four-year course was before this Association in 1928, numerous advantages were argued for and against it. Those schools which had already adopted this course were unanimous in their endorsement. To ascertain, if possible at this early date, if opinions had changed, Question 6, "What are the advantages so far gained by the four-year course?" was submitted. Forty-six schools reported distinct advantages; two reported that it was too early to offer an opinion; one saw no advantage so far; one reported a distinct disadvantage, but without comment; four did not report.

A few of the more frequently mentioned advantages were: time for more thorough work in each course; better morale; the broadening outlook; better sequence of a study; students show more of a professional attitude; a standard instead of a substandard course; fewer transfers of students to other courses; pharmacy has been dignified in university circles; fits students for a wider service.

Several deans, who had previously questioned the advisability of the mini-

mum four-year course, freely admitted that they were completely won over to the new program. The combination of college education and professional training is meeting with general approval. One dean, who is regarded as a pioneer in the field of higher education, writes, "The principal advantage we have found growing out of our minimum four-year course is the increasing recognition—even among our conservative pharmacists—that pharmacy needs men of better training, caliber and character."

Questions 6*a* and 6*b* were submitted particularly because of their bearing on two important advantages that it was hoped would be gained through the adoption of the four-year course. To the first part of this question, "Have better qualified students matriculated?" thirty-eight deans answered yes, in positive terms; nine answered no, without comment; five qualified their answers in such a way as to indicate that their matriculants in former years had been well qualified and two expressed no opinion.

The answers to the second part of this question, "Has it established an assured feeling of equality with students in other departments?" were as follows: thirty-three, yes; nine, that the question did not apply because they were independent schools; seven, that this question had not been a problem with them; two, not completely; two, no, but one offers in explanation, "We are associated with five- and six-year professional colleges and still are the short term school." Certainly, no more sweeping vindication of the four-year course can be offered than the answers to these three questions.

The introduction of the four-year college course in pharmacy, I fully believe marks the greatest and most important forward step in pharmaceutical education that has taken place in the last quarter of a century. I say this in a very emphatic and positive way and see no reason for modifying this statement in any particular. There are numerous reasons for believing that this is so. In the first place, it definitely elevates pharmacy to the rank of a profession, taking it permanently out of the vocations and class of manual trades. Again, it tends to bind medicine and pharmacy into a closer union than has ever before been possible because, in addition to giving the pharmacist a good professional training it provides time for considerable non-professional and cultural study and thereby places the pharmacist virtually on a par with the physician so far as general education is concerned. The pharmacist can now meet the physician on a plane of intellectual equality and demand respect for his opinions not only on matters involving drugs and drug therapy but on any of the general problems affecting private, community and national health. The first real step in bringing pharmacy and medicine into professional union has now been taken and the consequences of this step, as well as its importance for pharmacy, is well nigh inestimable.

A number of deans responded to my general invitation for comments and observations on the four-year course. These responses should not remain buried in my files and I wish to present some of them to you as quotations. I am indeed sorry that time prevents mentioning more than a few of the excellent replies that I have received.

"I am glad we have the four-year course. If I had it to do over again I should do whatever I could to promote its cause."

"The four-year course and curriculum as per Syllabus will attract a higher grade of students

who will, on graduation, have a better cultural background, and be more professional-minded and, on the whole, a credit to the profession of pharmacy. Formerly, only an occasional one would rise to such a high standard, and this was usually due to superior educational background before entering pharmacy school or college."

"We are well satisfied with the four-year course in this state."

"I realize very thoroughly that a four-year course seems to be somewhat excessive considering the kind of stores that possibly the majority of our students will go into after graduation, but I believe and sincerely hope that this is one way of raising the standards of pharmacy throughout the state."

"We always regarded pharmacy as the chief medical specialty and have continuously maintained that pharmacists should be educated upon an academic qualification equal to that required by medicine. Other professions are now exacting the same previous academic training that medicine requires. Our schools of Dentistry, Education, Business and Law require the same preparation for their respective technical work that medicine requires of students before they are admitted to medical subjects. Why should pharmacy occupy in a university a position inferior to any other school or profession? We feel there is no valid reason and all our endeavors in our struggle for advancement have been based upon that conviction. Pharmacy is a division of public health equally important with dentistry and certainly nearly as responsible as medicine. That pharmacists should be less qualified than dentists or physicians seems out of the question with us."

"I have a very definite feeling that the establishment of the four-year course will result in a much more secure position for the profession of pharmacy, both by the laymen and our sister professions of medicine and dentistry."

"We knew of course that there would be a few lean years but so far as I am able to determine there is not a man among us who would consider going back to the old system."

"I believe that our school has a better standing to-day in the state than ever before. We are putting on a part of the program for the state convention this year and in fact I feel fairly well encouraged in both the Syllabus and the four-year course."

"I am very much in favor of the four-year course in pharmacy. I believe this will decrease the number of graduates in pharmacy, but increase the qualifications of the graduates. I also believe it will have a tendency to instil a greater appreciation in the graduate for his profession, increase the professional side of pharmacy and decrease the general merchandising, which in my opinion is retrograding our profession at the present time."

"Judging from our experience in the last four years I believe that the benefits that have been accrued by graduates of the four-year minimum course in pharmacy more than outweigh the difficulties encountered."

The fourth edition of the Syllabus, which is intended to indicate subject matter for use in building the four-year curriculum, has now been available for a little more than a year. Each of the preceding editions of this book has served in turn to lead the way for the adoption of longer and broader courses of study. This one is destined to bring about greater uniformity and stability. Eventually its provisions should be written into the by-laws of this Association to become a part of the qualifications for membership.

It must be borne in mind that changes come about gradually and that it takes years of tireless effort to develop suitable and acceptable standards. Take for illustration, the U. S. P. which, though revised with great labor every ten years, was accorded no official standing for more than eighty years. It will not require so long a time, let us hope, for the A. A. C. P. to officialize a Syllabus. However, it would seem to be a little premature for the Association to attempt this step until the provisions of the Syllabus have been critically observed during at least one complete four-year cycle.

Bearing on this general subject, the next and last question, "What is the re-

action of your faculty to the new Syllabus?" has brought forth many significant replies. On the whole, these show that the various faculties are giving the Syllabus careful study. Several of the deans have provided each member of the staff with an individual copy. The appearance of the Syllabus at the time when the new course of study is being inaugurated has proved helpful in many ways and its merits as a suggestive outline have not failed of recognition. This Syllabus, as one member expressed it, "is the best ever and furnishes an excellent preliminary working basis." Twenty-two replies indicated that the faculty reaction to the Syllabus was favorable, twenty were to the effect that some modification would be necessary, eleven reserved opinion.

From the comments received, it is evident that further discussion of the courses in the Syllabus is advisable. There is a desire to have the list of basic subjects extended to include at least psychology and sociology, political science and more in the English group. The advisability of making mathematics and economics required and biological assaying optional was questioned. Commercial pharmacy and physical chemistry were suggested as additions to the professional and applied subjects. Regret was expressed that outlines for basic subjects were not included. No one expressed a desire for the elimination of any of the courses.

A considerable number of faculties are experiencing difficulty in adhering closely to the prescribed outlines. They expressed the belief that rather liberal modification will be necessary in order to meet local conditions. This was particularly noticeable in the replies received from state-supported schools. A minimum of revision should make this Syllabus acceptable. I would recommend that this problem be assigned to the Committee on Curriculum and Teaching Methods and that this committee be increased from five to ten members.

Before I leave the subject of the Syllabus, I wish to express my surprise that the slow sale of this book, reported last summer, still continues. Dean Beard informs me that only a small number of the state board examiners have purchased copies. The material in the Syllabus ought to appeal to all the members of every state board of pharmacy. Here is an opportunity for our faculty members of the Committee on Relations of Boards and Colleges, if they have not already done so, to render service to pharmacy by starting discussions concerning the application in professional pharmacy of the different courses outlined in the book. The chapter pertaining to the use of the Syllabus by the state boards in preparing their questions is also worthy of an afternoon or evening's discussion.

As has been stated before, the introduction of the four-year college course in pharmacy marks the most important forward step in pharmaceutical education during the last quarter of a century. Some very pertinent questions arise which demand judgment and discussion. What distribution of time and study is best and wisest during this four-year period? How shall the professional and non-professional courses required be related to each other? Can the rapidly advancing junior college movement, which is literally sweeping certain sections of our country, be used to advantage in furthering pharmaceutical education?

Heretofore we have had little occasion to take cognizance of a new educational unit such as the junior college. This is a great educational experiment which had its practical beginnings in the first decade of this century. The *Junior College Journal* of January 1934 contains a directory showing a total of 514 colleges with

a total enrollment of 103,530 students. The Atlantic Coast states have only a small number of these colleges, but in the South and Middle West they are growing steadily in importance. There is distinct evidence, also, that this is a healthy growth.

About 90 per cent of these junior colleges are accredited in state universities through a committee chosen for that purpose, acting as the accrediting agency. The standards to be met are the same as those for the first two years in any high-grade four-year college.

The universities directly concerned with junior colleges in their own states have for the most part shown a commendable spirit of coöperation. Naturally some of the older universities have been indifferent or adopted the policy of suspended judgment to the whole junior college movement. This attitude can be only temporary, however, for the importance of this educational change will soon be felt throughout our entire educational system.

The curricula of most of the accredited junior colleges are modeled upon the first two years of university work. The junior college period may become an important unit for pre-professional training. E. D. Chadwick, in a survey of the junior colleges of Minnesota, gives a list of pre-professional curricular offerings which includes one for a year of credit in pharmacy schools. These junior college graduates are coming to the universities in increasing numbers. Many now feel that one year of pre-pharmacal work in a junior college is entirely feasible, but two years of this work has been suggested. Can such a plan be successfully carried out? There is reason to believe that it can.

A great amount of so-called pharmaceutical education is not professional in character, and institutions other than colleges of pharmacy can impart this information quite as well, perhaps better at times, than can the regular school of pharmacy. If the professions of medicine and law find it possible to take advantage of junior college training in fitting their students for later professional study, it would seem that schools of pharmacy were taking themselves all too seriously if they insist that this part of the education of the pharmacist can only be carried out successfully under their direct observation and guidance.

The very first requisite of a professional man has always been, and I am quite sure always will be, that he be a liberally educated individual and that in addition to possessing professional knowledge he should also be equipped with broad and extensive non-professional information. This is doubly true for the professional man of to-day for only on a broad and liberal foundation of non-professional information can the complex superstructure of modern professional study be built. The professions of law, medicine and the ministry, to mention only a few, have come to recognize this as an established fact and are to-day insisting on a long period of general, cultural or non-professional study as a very necessary prerequisite to real professional training in these fields.

No professional school can ever hope to teach all that its students need to know in later life. College training must seek rather to instruct the student how to read the permanent written record of man's achievement accurately and intelligently and how to proceed from the known to the unknown, once general principles have been laid down and mastered. For a well-prepared student there need be no special kind of inorganic or organic chemistry, no English, botany or biology

especially adapted to this or that professional student. Subjects such as these are all prerequisites to pharmacy as well as to the other professions and should be so considered. A well-equipped junior or university college should be able to teach these subjects quite as well as the very best professional school. We should not become too sentimental about prerequisite studies except to see to it that they are given by properly trained individuals. Let us make our schools of pharmacy real professional schools devoted strictly to the professional aspects of pharmacy and leave training in the prerequisites to others to carry out.

The modern intellectual development of any young man or woman falls quite naturally into two main divisions; *first*, a non-technical, non-professional, so-called cultural part, and *second*, a technical or purely professional part. We might very properly divide the four-year course in pharmacy into two equal biennial periods. The first period should be devoted to the acquisition of purely cultural subjects together with the necessary prerequisites for later pharmaceutical study. This may be taken in an accredited junior college or in the first two years of a college of pharmacy offering a complete four-year course. The second two years could then be devoted to an intensive and concentrated attention to the professional content of pharmacy, stressing not only the scientific side but also the economic or business side. A program of this sort is in line with practices in other professions, and the sooner we enter their company and adopt their point of view the sooner we shall enter into our professional birthright and take our proper place with the professions of medicine and dentistry in helping solve the great problems of health and disease which are so very fundamental and important to our age in civilization.

ABSTRACTS OF PAPERS PRESENTED BEFORE SCIENTIFIC SECTION, A. PH. A. WASHINGTON MEETING, 1934.

"Penetration of Volatile Oils and of Fixed Oils and Fats through the Intact Skin," by David Macht.

A number of powerful pharmacological agents were incorporated into various fatty bases employed for making ointments; and their penetration through normal intact skin was studied by observing the effects produced by absorption, if any, of the drugs. In another series of experiments various volatile oils, as well as some of their active chemical isomers, were similarly used. Constituents were applied directly to the skin, and absorption phenomena were studied and compared. This research is of importance in connection with the use of various vehicles for the incorporation of active drugs to be applied to the skin.

"The Assay of Chloral," by Donald C. Grove, Edward M. Hoshall and Glenn L. Jenkins.

The present official method for the assay of Chloral is shown to be inaccurate. A method is proposed which is based on the conversion of the chlorine to chloride in a simple pressure bottle and a determination of the resulting chloride by argentimetric methods.

"Some Observations on the Stability of Quinine Sulphate during Storage," by L. E. Warren.

Seven packages of freshly prepared quinine sulphate were stored under conditions simulating those obtaining in prescription dispensing. The packages were opened at varying intervals and small portions removed from the surface of the material without disturbing the remainder. The intervals from opening to the time when the product became stable (ceased to lose weight) were recorded. In a climate comparable to Washington, D. C., the salt progressively loses water of crystallization until after 4 to 12 months it contains about two molecules (4.6%) after which it remains practically stable.

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

PRESCRIPTION INCOMPATIBILITIES AND THEIR PROBLEMS FROM THE TEACHING STANDPOINT.

BY RALPH E. TERRY.*

(*These articles continued from page 364, April Journal.*)

From the teacher's standpoint, the presentation of the subject of Prescription Incompatibilities has many problems. There are three outstanding factors which warrent discussion at this time. These may be termed: Time, Content, Method.

Time.—This factor might be subdivided into two distinct units; placement in the course of this subject and the amount of time allotted to the study of the subject. Time in relationship to placement in the course needs very little mention for universally the study of Prescription Incompatibilities is reserved until the final term. This is as it should be and no attempt should be made to introduce it at any earlier period even as a so-called "student interest" bait. The fact that this is the most technical of all the courses offered in the Pharmacy curriculum demands the completion of the basic subjects. There is also the possibility of confusing the student by applying some of the facts before he is well grounded in the fundamentals.

Another important factor of *Time* is the question of how much time is to be allotted to the work. Again differences in what should be taught as part of the course will cause considerable differences in time devoted. This question of *Content* is to be discussed later, but a basic quantity of time should be assigned to the work. A minimum number of clock hours might be specified, however, and it is hoped that during the discussion of this problem some opinions may be expressed on this question.

Content.—While the question of incompatibilities may be stated as a relative thing; there is no doubt but that certain reoccurring difficulties do arise. To the novice almost any formula has possibilities of trouble; experience shows the way to avoid these hitches. Therefore, in the teaching of the subject, we are facing two distinct phases; *first*, we must carefully arrange the exercises in such a way that they are of a progressive nature, and *second*, these should be of a practical nature where possible. Progression can be secured only by careful selection. One of the best devices to start out the work is to use an exercise which the student has previously completed in the regular work, and by restating the formula in slightly changed wording, profit by the student's experience. Many times this "carry-over" will be disappointing to the teacher, but the student will recall the earlier exercise when the instructor explains it and there is an important feature here not to be overlooked; that of a repeated experience. And all learning is simply repeating experiences until they become habits. Therefore, the device of starting the subject on a familiar base should be used.

* University of Illinois.

The question of stating the problems as practical formulas will not always work since there are times when the facts can be better studied if the formula be stated in the theoretical manner. Here again the possible carry-over from the previous subject should not be overlooked. As an example, a formula calling for eye drops of silver nitrate in normal saline solution presents the old qualitative reaction dressed up in a pharmaceutical cloak. And so there are a number of such reactions which might be used as starting points, carrying over into the new work facts learned early in the student's work and therefore more easily brought to mind.

On the other hand, at times student interest can be aroused to a higher pitch if the problem is stated in practical language. Then, too, the actual translation of laboratory experience into practical life is made easier if the applications are kept in mind at all times.

One more important possibility in relation to *Content* of course; since this subject is taught at a time when the basic subjects have been covered, and since the study itself makes use of many of the facts previously learned, the teaching of prescription incompatibilities offers a wonderful opportunity for reviewing a large number of courses. Here again is an opportunity to arrange the work in such a manner as to cover the basic subjects, yet the course should not degenerate into a mere review study.

Method.—Method is the most important of all the factors. A good teacher with a well-worked-out method can present a subject of inferior content and get better results than another instructor blest with a much better course content. And *Method* should be made up of the following phases: the materials, desk space, a text or manual and a goodly supply of teacher's time and energy. This latter cannot be over-stressed for if there is any place in the modern system of instruction where the old-fashioned preceptor method has a place it is in this particular study. A few suggestions as to the best method, a careful supervision of the work, and then a short discussion following the completion of the exercise will do more to assist the student than any other system. Here is where true teaching ability shows; some students need only a small amount of help. Others need very careful and complete supervision, and when possible they should have it. On the other hand they should not be too completely dominated since the loss of independence of action would be very undesirable. Therefore, this feature must be carefully adapted to the individual student.

Under a discussion of *Method*, a very important discussion is that of using the proper formulas. In a previous paper, the use of small amounts of materials was outlined. For the study of the theoretical phases of the subject, this is perhaps the best manner, but as a practical course, the use of "full-sized" formulas is urged. Thus the student is confronted with the problem as he will see it in later work and by solving the laboratory problem he gains the confidence for his future work. This is the important part of the course in Prescription Incompatibilities.

SUGGESTIONS ON TEACHING A COURSE IN INCOMPATIBILITIES.

JOHN S. MITCHELL.*

It seems there is always some controversy concerning the methods used and their procedure in teaching a course in incompatibilities in prescription writing.

* Howard University.

When one observes the varying results obtained from the compounding of a simple formula, he concludes that there is yet need for a more unified idea concerning that art which is the fundamental act of the practicing pharmacist.

Now that the four-year course in pharmacy is going into effect, a better opportunity for broadening the course in incompatibilities is made possible. Two major arguments, as to how a course of this kind should be taught, are given. There are those who think a course of one lesson an hour a week, in the second year, is sufficient. This one-hour period of course supplemented by a one-hour period of laboratory work. Others reduce the time to one semester's work. In either case there is the fault of the student memorizing the prescriptions to be discussed for that period, only to forget them and take new ones at the next meeting of the class. Here the results are frequently disappointing, since sufficient time has not been given to the subject.

There are those who feel that a more intensive course, consisting of one semester's work having two lecture periods and two laboratory periods a week, be given. In the new four-year course outlined for the pharmacy student this idea seems a better one. The student received a more intensified drilling and is able to recognize and adjust more readily the incompatibilities that are presented.

The number of textbooks written on the subject are few. However, it is not necessary to confine one's teaching to a specific book. In either case the student is given prescriptions and is required to search for all incompatibilities, but compound as written. Having observed the physical and chemical changes involved, he then, upon his own knowledge of these transformations, selects the procedure in compounding that will effect the best result. This without interfering with the chemistry or therapy of the preparation. The two prescriptions are then compared and notes made for the discussion in class. Criticisms should be invited from the fellow students, enabling the instructor to have a better conception concerning the clearness of each problem in the student's mind.

Frequent quizzes might be given. Because in his course in Practical Dispensing the student is daily compounding, he constantly becomes more thoroughly acquainted with the many changes involved in the process of his operation. This, of course, develops him in technique and stimulates in him clearer ideas concerning the art of prescription adjustment.

HOW INCOMPATIBILITIES SHOULD BE TAUGHT AND HOW MUCH TIME SHOULD BE DEVOTED TO THEM?

BY D. B. R. JOHNSON.*

First, they should be taught in qualitative chemistry, showing the student at that time that every reagent used there becomes an incompatibility in dispensing. If this is done by those teaching our chemistry to pharmacy students, then the chemical incompatibilities will be so well tied to the knowledge of chemistry that little more will be needed in a drug course on incompatibilities of this kind.

The pharmaceutical incompatibilities should be stressed by the teacher at the time the student is carrying the galenicals and other pharmaceutical preparations. In these the solvent used frequently determines the incompatibility of the various preparations.

* University of Oklahoma.

As to the therapeutic incompatibilities we have to deal with those drugs which when combined may create an overdose, or, when combined in the same preparation, one nullifies the action of the other. This should be taken care of in the study of pharmacology, or if it be so taught, in the department of materia medica.

Second, if this work has been well done as outlined, only a short course not to exceed two credit hours would be necessary to coördinate the field which I will designate as general incompatibilities.

WHEN SHOULD DISPENSING BEGIN AND HOW MUCH TIME SHOULD BE DEVOTED TO IT?

First, we must consider the different state laws. In some dispensing should occur or be partly taught, how to use a torsion balance, fold powder papers, fill capsules, etc., in the first semester so they will know a little of the technique when they take the Board of Pharmacy examination in the state. On the other hand, a certain amount of the work, given in the first semester and continued at times in some pharmaceutical work through the entire school course, holds the mind of the student to the thing which he will be required to do after completing his course in pharmacy. I think the work should parallel in a way the material that he is studying during the year in which this part of the dispensing is given.

Second, as to the time that should be devoted for coördinating and completing the above-outlined course, I suggest about five credit hours or fifty-one lecture hours and approximately 102 laboratory hours for the final and coördinating part of the course.

RESOLUTIONS AND RECOMMENDATIONS ADOPTED BY THE AMERICAN PHARMACEUTICAL ASSOCIATION AT ITS EIGHTY-SECOND ANNUAL MEETING IN WASHINGTON, D. C., MAY 7–12, 1934, UPON RECOMMENDATION OF THE HOUSE OF DELEGATES THROUGH ITS COMMITTEE ON RESOLUTIONS.

ADDRESS OF PRESIDENT ROBERT L. SWAIN.

We desire to record our deep appreciation of the masterly address delivered by our president, from which we desire to submit the following resolutions for your action:

No. 1. Maintenance Committee, American Institute of Pharmacy.

Resolved, that the committees on Campaign Funds, Site and Plans for the A. PH. A. Headquarters Building be discontinued, and that a new committee be set up to consolidate the work done so far and to push on to the ultimate objective; title of this committee to be the "American Institute of Pharmacy Maintenance Committee" and that H. A. B. Dunning, chairman of the present Campaign Fund Committee, be asked to assume the chairmanship of the Maintenance Committee.

No. 2. Retiring President on the Council.

Resolved, that the Constitution and By-Laws be amended to provide that the retiring president become an *ex-officio* member of the Council for the succeeding year.

No. 3. Chairman House of Delegates and the Presidency.

Resolved, that the chairman of the House of Delegates be ineligible for nomination for the presidency during the term of his office and that this action shall not apply in any sense to the present chairman or vice-chairman.

No. 4. Selection of Candidates for Presidency.

Resolved, that the By-Laws be so amended as to provide for the nomination of two candi-

dates only for the office of president. The committee desires to submit this recommendation to the Council for their study and proper action.

No. 5. Study of State Codes.

Resolved, that a special committee be appointed to make a thorough study of all state codes and the legislative acts under which they have been created, as many of their provisions are certain to affect the conditions under which pharmaceutical service is made available.

No. 6. Food and Drugs Act.

Resolved, that the Food and Drugs Act be amended to include cosmetics and to bring advertising under Federal supervision and control, and that no necessary power should be denied the enforcing agency, and that the public interest should be the paramount consideration. On the other hand, however, broad, sweeping and uncontrolled powers should be withheld as unnecessary to the purposes of the Act, and as inconsistent with our theories of Government. Industry should not be unduly harassed but should be given every freedom consistent with the basic purposes of the Act.

No. 7. Distribution of Drugs and Medicines.

Resolved, that the AMERICAN PHARMACEUTICAL ASSOCIATION re-affirm its time-honored position that drugs and medicines should be distributed by registered pharmacists only, and that a carefully selected committee be appointed to draft a model act to bring this condition about in every state.

No. 8. A Study of Pharmaceutical Legislation.

Resolved, that the ASSOCIATION give serious study to the matter of pharmaceutical legislation and that some agency be set up to study pharmaceutical legislation so that it may be modernized and made consistent with the advances made educationally and professionally.

No. 9. Membership Plan.

The committee desires to approve the comprehensive plan outlined in the address of the president relative to the matter of membership, and further desires to recommend this for the proper consideration of the Council.

No. 10. Award to Pharmaceutical Publication.

Resolved, that the ASSOCIATION award a medal yearly to that publication meeting a certain standard of excellence, and that this medal be awarded by a committee to be entitled the A. PH. A. Commission on Membership and Awards, which committee is to be composed of the former presidents of the ASSOCIATION. In approving this resolution, the committee desires to express its sincere hope that the past-presidents will embrace this opportunity to advance the cause of pharmaceutical journalism.

ADDRESS OF CHAIRMAN P. H. COSTELLO OF THE HOUSE OF DELEGATES.

We desire to express our appreciation of the address of Chairman Costello, and urge that the membership acquaint themselves with its contents.

No. 11. Pharmacy Week.

Resolved, that the A. PH. A. continue its support of the observance of "National Pharmacy Week," and records its deep appreciation of the splendid aid given this movement by the various state associations.

No. 12. Publication of Proceedings of Annual Meeting.

Resolved, that we record our appreciation of the promptness with which the material of the annual convention has been made available to the membership through successive issues of the JOURNAL and that consideration be given to publishing the entire proceedings of the A. PH. A. in one issue of the JOURNAL as soon as feasible.

No. 13. Institute of Pharmacy Commemorative Stamp.

Resolved, that we approve the adoption of a U. S. commemorative stamp on the dedication of the American Institute of Pharmacy, and suggest that an attempt be made through a proper committee to have favorable action taken on this plan.

No. 14. Material for Library and Museum. Institute of Pharmacy.

Resolved, that the attention of pharmacists of the country be drawn to the establishment in the American Institute of Pharmacy of a reference library and historical museum. These divisions are intended to collect and exhibit various materials which will illustrate the development of pharmacy and pharmaceutical literature. Pharmacists of all sections are invited to contribute to the library and museum any materials suitable for these purposes.

No. 15. Procter Memorial.

Resolved, that the Committee on the William Procter, Jr. Memorial Fund be instructed to proceed with the erection of the Procter Statue in the foyer of the American Institute of Pharmacy as outlined, and that in conjunction with the Council, arrangements be made for its unveiling when completed.

No. 16. H. R. 3768.

Resolved, that the ASSOCIATION approve H. R. 3768 changing the title "Retail Liquor Dealers Stamp Tax" to the "Medicinal Spirits Stamp Tax," and that a copy be sent to the chairman of the Senate Finance Committee and to Senator King, chairman of the Sub-Committee.

No. 17. Committee on Pharmacy Corps in the U. S. Army.

Resolved, that the Committee be continued and instructed to secure the establishment of pharmacy properly in the United States Army, that is, that the opportunity for service, recognition and advancement of the pharmacist in the Army shall be on a parity with that of the commissioned personnel in the Dental and the Medical Corps of the Medical Department.

That the ASSOCIATION renew its request that the leading pharmaceutical organizations of America, including state pharmaceutical associations, continue special committees on the establishment of and recognition of pharmacy in keeping with its professional dignity and merit in the United States Army, all working together for this worthy cause.

That the chairman of this Committee, for the following year at least, be some competent member of this ASSOCIATION who resides sufficiently near the National Capital, so that he may readily confer with the officials through whom our work can best be forwarded.

No. 18. Committee on Press Relations.

Resolved, that a vote of thanks be extended to the chairman of the Press Relations Committee and his co-workers for the efficient work in giving to the press the publicity of the annual meeting held in Washington during this week.

No. 19. Resolution of Thanks to Governmental Agencies.

Resolved, that the ASSOCIATION hereby express its appreciation for the interest and helpful support given by the Commission of Fine Arts, the National Capitol Park and Planning Commission, the Commissioners of the District of Columbia, by other Governmental agencies, and by members of Congress, in connection with the location and completion of the American Institute of Pharmacy.

No. 20. Resolution of Thanks to Architects, Builders, Etc.

Resolved, that the ASSOCIATION hereby express its appreciation to John Russell Pope, Architect, to A. F. Brinckerhoff, Landscape Architect, to the George A. Fuller Company, Builders, and to all who have coöperated with them in designing, planning, erecting and furnishing the American Institute of Pharmacy and in landscaping and planting the grounds.

No. 21. Resolution of Thanks to Hosts.

Resolved, that the A. PH. A. extend its sincere thanks to the District of Columbia Pharmaceutical Association, to Local Secretary Frank Delgado, Chairman Paul Pearson, Mrs. Moskey, chairman of the Women's Committee, W. P. Herbst, chairman of the Entertainment Committee and other committee chairmen, the Greater National Capital Committee of the Washington Board of Trade, and the pharmacists of Washington for their hospitality.

AN ENGROSSED PARCHMENT FROM THE BRITISH PHARMACEUTICAL SOCIETY.

The British Pharmaceutical Society presented an engrossed parchment conveying congratulations on the occasion of the dedication of the American Institute of Pharmacy. The document evidences a spirit of friendship and professional relation which is reciprocated and greatly appreciated by the AMERICAN PHARMACEUTICAL ASSOCIATION. President F. Gladstone Hines, Secretary Hugh N. Linstead, Council Member Thomas Marns and Chairman of the British Pharmaceutical Conference, Herbert Skinner, attended the Toronto meeting of the A. PH. A. The latter sent a congratulatory cablegram to the Washington convention. Copy of the Parchment follows:

DEDICATION OF THE AMERICAN INSTITUTE OF PHARMACY.

To the AMERICAN PHARMACEUTICAL ASSOCIATION:

THE Pharmaceutical Society of Great Britain sends cordial greetings upon the occasion of the dedication of the American Institute of Pharmacy.

The Society has known and sympathized with your desire for a headquarters building where your work could proceed without the limitations that have hampered it in the past and it has watched with interest the progress that has been made in recent years toward the fulfilment of this desire in the form of the American Institute of Pharmacy. It has been with great pleasure that the Society has learned of the completion of the Institute and of the arrangements for its dedication.

THE Society congratulates you heartily upon now possessing a headquarters worthy of your ideals and of the importance of your work and it shares the pride and satisfaction you must feel in a building that combines suitability for its purpose with classic grace and dignity. It is a matter of no less gratification to the Society that the Institute should be situated in surroundings of charm and distinction and should enjoy the amenities and prestige derived therefrom. The existence of a central institution focusing the pharmaceutical life of the country, acting as a unifying and coördinating influence and providing facilities for the advancement of pharmaceutical knowledge, education and coöperation should prove of great value to pharmacy in the United States of America; the Society sincerely trusts that your services in establishing such an institution will receive due recognition and that you will enjoy a future of increasing progress and prosperity.

John Keall, *President*,
E. Saville Peck, *Vice-President*,
Hugh N. Linstead, *Secretary*.

April 24, 1934.

PRESIDENT ROOSEVELT'S DEDICATION MESSAGE.

THE WHITE HOUSE
WASHINGTON

April 26, 1934

It is with real pleasure that I extend my congratulations and my best wishes to the American Pharmaceutical Association, and to the profession of pharmacy, on this occasion. The dedication of this beautiful structure appropriately located here in the Nation's capital as the headquarters of your Association is an important milestone in its history.

I regret that the press of Executive duties has made it impossible for me to greet you here personally; but through this message I express my appreciation of the great work which you have accomplished in the past in contributing to improved standards, not only in products but in professional education and in professional integrity, and in putting American pharmacy in the forefront of the world.

I am proud of the reputation which American drug and biological products, used in the prevention and treatment of disease, enjoy throughout the world and am fully conscious of their importance in our commerce, both national and international. You have cooperated with the medical profession in joint endeavor to prevent and cure illness, lessen suffering, and restore to usefulness and happiness the afflicted of all lands; and you must feel a justifiable pride in making such a contribution to human welfare.

Franklin D. Roosevelt

DEDICATION OF THE AMERICAN INSTITUTE OF PHARMACY

THE DEDICATION.

A beautiful day welcomed an assemblage of one thousand or more of invited guests and members of the AMERICAN PHARMACEUTICAL ASSOCIATION at the dedication exercises, held at its home—the American Institute of Pharmacy—on Wednesday, May 9th. It was regretted that the President could not attend, but he sent a congratulatory message, which is made the preface of this report.

INTRODUCTORY ADDRESS.

BY SAMUEL L. HILTON, CHAIRMAN.

Fellow Members, Honored Guests, Ladies and Gentlemen:

As Chairman of the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION, I deem it a privilege as well as a pleasure to welcome you to the dedication exercises this morning.

It has been a long cherished ambition for us to erect or found or establish a permanent headquarters where all of the activities of the ASSOCIATION could be concentrated and conducted, and where its valuable collection of historical material illustrating the development of pharmacy in this country could be exhibited.

The ASSOCIATION has also looked forward to the establishment of a reference library of pharmacy and of a research institute for the improvement of standards for materials used in the prevention and treatment of disease.

We are here assembled this morning to dedicate this beautiful and impressive building, designed by Mr. John Russell Pope, the well-known architect, approved by the Fine Arts Commission and which will stand as a monument to American Pharmacy and as a consummation of the hopes of all of those interested in our profession.

We had hoped to have with us this morning the President of the United States; the activities of Congress now in session, the conditions now existing and the demands on the President's time necessitated his declining, he has, however, sent us a message, this message will be presented by Dr. George W. McCoy, Director of the National Institute of Health.

I am gratified and much pleased to present Dr. George W. McCoy.

In introducing Dr. George W. McCoy, director of the National Institute of Health, Chairman Samuel L. Hilton stated that the activities of Congress and the demands on the President's time necessitated his declining the invitation to be present on this occasion; however, he sent a message, to be presented by Dr. McCoy. Chairman Hilton remarked that many in the audience knew Dr. McCoy, and it was his pleasure and privilege to present him.

Dr. McCoy's prefatory remarks were addressed: "Mr. Chairman, Distinguished Guests, Members of the AMERICAN PHARMACEUTICAL ASSOCIATION—I present the following message from the President of the United States."

He then read the message which appears on the preceding page. Chairman Hilton thanked Dr. McCoy and the audience stood.

The chairman introduced as the next speaker Robert L. Swain, president of the AMERICAN PHARMACEUTICAL ASSOCIATION.

THE AMERICAN INSTITUTE OF PHARMACY DEDICATION ADDRESS.

BY ROBERT L. SWAIN.

"All below is strength, and all above is grace."—Dryden.

A contemporary wrote that "Mr. Jefferson is the first American who has consulted the fine arts to know how he should shelter himself from the weather." It is most gratifying to note that the AMERICAN PHARMACEUTICAL ASSOCIATION, more than a century and a half later, resorted to the same source in planning and building this home. And the arts have given lavishly that the home might be a perfect thing. Elegance, charm, grace, all of these have conspired to create something of surpassing loveliness. To gaze upon this building is to look into the very countenance of art itself. A strange feeling of exaltation and humility comes over us as we speak of it as home.

And so we assemble here this morning to dedicate this, the American Institute of Pharmacy, as the home of the AMERICAN PHARMACEUTICAL ASSOCIATION. It is indeed a most happy occasion. The whole thing seems so supremely as it should be. For more than eighty-two years, the ASSOCIATION has been in existence, but for all of this period she has been living with members of the family. During all of these years, she has been looked after by loyal sons, who have taken enough of their busy lives to see to it that she was sheltered properly, and cared for as her interests and activities demanded. First, she made her home with a famous son in Philadelphia in 1852. In 1853, she moved to Cincinnati, and back to Philadelphia in 1858, and on to New York in 1859. In 1862, she returned to Philadelphia, but went back to New York in 1863. Returning to Philadelphia two years later, she remained there until 1894. In that year, she came to Baltimore for an extended visit of fifteen years. For three years, she graced the city of Scio, Ohio, and from there journeyed to Chicago, where she remained until 1925. From 1925 to 1934, she again favored Baltimore. On the first day of this year, she moved over to Washington, and proudly, and it must be admitted a bit belatedly, came in as mistress of her own home. As loyal members of the family, we claim our kinship with a feeling of pride. We seem to sense that there is something fine in belonging to her household. As we shower her with congratulations, we confess to a feeling of superiority ourselves as we note that she has acquired a home in surroundings heretofore reserved for the immortals.

What a matchless scene! The setting of this building alone is sufficient to stir us to the depths of our very souls. It is majestic in the fullness of its meaning. The ages seem to converge to this very point. The hopes, the struggles, the deep yearnings of countless centuries seem to press close to us as we assemble here. Here we stand very near to the nation's heart. Here we seem to be a part of her proud traditions. Here her great teachings seem to take on new life, and to shine with the splendor of the sun.

The Capitol of the United States, sitting in quiet majesty at the other end of the Avenue, serves to emphasize the full significance of this undertaking. The

banner, which so proudly floats above it, has always been an emblem of promise to the peoples of the world. From the earliest days, this country has been devoted to principles of justice and right. Her institutions have been expressive of the hopes of a free people, and dedicated to a betterment of all human relations. Wars of aggression or oppression do not blot her history. Rather she has shed her blood lavishly that the world might enjoy liberty and security. May she become the example of all lands. "Let us have peace."

We are almost within the shadow of the Washington Monument, this monument of clear, sharp outlines, symbolic of the righteousness of his character, and the symmetry of his life. His life rose to such supreme heights that it has been said "the test of progress of mankind will be in the appreciation of the character of Washington." As we gaze upon his classic obelisk, we almost catch the words of Lincoln as he pours out his heart to the only American greater than himself: "To add brightness to the sun, or glory to the name of Washington is alike impossible. Let none attempt it. In solemn awe pronounce the name, and in its naked, deathless splendor, leave it shining on."

In front of us looms the Lincoln Memorial. I never stand before this edifice, but I recall the devout lines from Milton: "Beauty is God's handwriting—a wayside sacrament." This memorial is a sacrament. It stands a tribute to one whose great heart beat for humanity, and whose blood was poured out upon the altar of national unity. To him, perhaps as to no other, the world turns in its hours of distress and pain. It brings its tears to his very feet. It looks into his great eyes for compassion and understanding. It was he whose life embraced all life, and whose death teaches how impossible it is for eternal truth to die. It is beyond the power of the human mind to think of Lincoln as dead. His life, his principles, his great soul are as enduring as the stars. He belongs to the ages and to us. As we tune our minds to his this morning, we sense the full, deep rhythm of his heart as he pours out his soul to an anguished people. "It is rather for us to be here dedicated to the great task remaining before us, that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion; that we here highly resolve that these dead shall not have died in vain; and this nation, under God, shall have a new birth of freedom; and that government of the people, by the people, and for the people shall not perish from the earth."

But a short distance away, over the Arlington Memorial Bridge, lie the nation's dead. There, enshrined forever, are those whose lives were devoted to the principle that this country should be a covenant with ages yet unborn; those whose death inspires us to keep the faith, to keep unspotted and unstained the banner for which they died, and under which we live and move. As we begin to understand all that our history means, all that it teaches and confounds, all that it builds up and destroys, we become more able to chart the real from the unreal, and to march in tune with the nation's faith and destiny.

This building, so aptly named the American Institute of Pharmacy, seems to have been conceived for erection on this very spot. Its design is the portrayal of an artist's soul. It had its inspiration in a lofty sentiment. It is a beautiful dream translated into matchless marble. Some great mind has said that architecture is frozen music. Certainly it can be nothing less. No one can gaze upon

these classic walls without thinking great thoughts, dreaming great dreams, and daring to do great deeds.

I have seen this building rise stone by stone. I was here when the first spade was pushed into the ground. I have watched the patient labor with which this building became an actual thing. The process has been a bit mystifying to me. I can see how the architect, in the rarified atmosphere of his own mind, might dream this dream. I can see it take form and grace in the deep recesses of his own soul. It is here that the artist lives; it is from such endless things he draws his inspiration. I confess frankly, however, that the process by which the dream emerges in deathless stone remains a mystery. It is nothing short of making reality out of unreality, and of translating infinity into the finite. It is because of the subtlety of the process that I have a profound respect for the man who deals with the material side. He, too, must see poetry in brick and stone. He, too, must possess the mystic touch that transmutes the baser metals into gold.

To me this building becomes a symbol, a symbol of a profession devoted to the eradication of disease, and to a betterment of the conditions under which we live. It symbolizes the countless ages through which pharmacy has trudged side by side with man as he pulled himself along the highways of the past. It symbolizes the tenets of professional doctrines which have demanded higher and ever higher standards for drugs and medicines. It symbolizes the quiet faith of the research worker as he crystallizes his imagination and creative skill into new products for the alleviation of pain. It symbolizes the determination and patience of the pharmaceutical educator as he pours out his life in training others for their great responsibilities. It symbolizes the obligation of pharmacy as it bends to the task of conserving and improving the public health. It is a symbol that pharmacy will be as true to the future as it has been to the past.

Aside from the beauty of its surrounding and the quiet grace of its design, the American Institute of Pharmacy will be devoted to the development of pharmacy, and for a betterment of its professional service. It will become a veritable workshop for the advancement of those sciences upon which the public health so largely depends. It will house promptly, so I fervently hope, all those agencies concerned with professional phases of pharmaceutical work. I hope that pharmaceutical education will make its headquarters here, and that the legal side of pharmacy, as represented by the examining boards, will also seek a place here.

I look forward to the time when these walls will embrace a well-rounded, efficient and forward-looking pharmaceutical program. There are many studies of the most far-reaching importance which need to be organized, systematized and carried out without undue delay. There are research studies of great bearing upon the United States Pharmacopœia and the National Formulary, as national legal standards for drugs and medicines, which should be begun. The drug industry and the Government should look here for the scientific work upon which drug standards rest, and for the technical directions under which they are to be achieved. Unfolding of the picture indicates just what a magnificent destiny confronts us.

Unfolding of this picture also discloses our individual responsibility. It challenges us to give our best thoughts and talents to our profession. It is a crying demand to measure up to our responsibilities to ourselves and to be diligent in meeting our obligations to the public health. In a large measure, this mag-

nificent undertaking will fail if it does not kindle an inextinguishable fire in our professional consciousness. Not only must this building rightfully portray our calling, it is necessary that we, too, measure up to the same standard and assume, in no small part, the same task.

As we dedicate this building, we should, in an equally large measure, dedicate ourselves. There is a vast work to be done within our own ranks. There are those who have wandered off into strange lands, and are bowing down to strange gods. There are those who would tear down rather than build up. There are those who scoff at professional ideals, and who deny the existence of high professional principles. There are those who would destroy the intrinsic things for which pharmacy stands.

We need a greater devotion to fundamental things. We need to see beyond the purely materialistic point of view. We need to grasp the bigness of the task which gives us a real place in the fight against disease. We really need to think great thoughts. We need to feel just what one great soul must have felt when he said that "every calling is great that is greatly pursued."

As we become aware of the vastness of this project, as our hearts begin to beat in harmony with its great ideals, as we catch a glimpse of the immensity of the principles for which it stands, let us, too, become dedicated to the great tasks remaining before us. Let us resolve that this edifice shall really be our image! Let us be determined to be worthy of it. May we never forget that the American Institute of Pharmacy is dedicated to those who have contributed their knowledge and endeavor to the preservation of public health and to the further advancement of science in pharmacy.

Chairman Hilton thanked President Swain.

In introducing the next speaker, Chairman Hilton referred to the outstanding work in Government development and the beautifying of Constitution Avenue and other sections of Washington for which Mr. Charles Moore is the directing head and which is making the City the most beautiful in the world. He also referred to him as a friend of this organization and as chairman of the Fine Arts Commission.

RELATION OF THE INSTITUTE TO THE WASHINGTON PLAN.

BY CHARLES MOORE.*

The original plan of Washington designed by L'Enfant in coöperation with President Washington was reaffirmed and extended by the Senate Park Commission of 1901. That plan maps main elements of the scheme of development you now see in progress. The Lincoln Memorial, one of the chief features of the large plan, has now taken its place among the chief monuments of the world. The building, like the man, belongs to the ages. On its inner walls are carved Lincoln's Gettysburg Address and his Second Inaugural, heart-born thoughts expressed in diction comparable with Pericles's immortal oration over the Greeks who fell at Thermopylæ.

Into the sphere of architectural influence exercised by the Lincoln Memorial this Pharmaceutical building comes. By virtue of patient and sympathetic co-

* Chairman National Commission of Fine Arts.

operation between your officers and architect and the members of the National Commission of Fine Arts, this building has become a vital portion of the frame to the Lincoln Memorial picture.

How vital is this relationship was very recently told me by your reticent architect, John Russell Pope. "When plans were making to mark Abraham Lincoln's birthplace at Hodgenville, Kentucky, the program of competition called for one building to embody in its architecture as well as its contents the spirit of Lincoln. I submitted a design based on this representative idea. When a totally different scheme was adopted, I put away my drawing sadly, as every artist does when he finds one of his conceptions fails of realization. Years passed. This Pharmaceutical Building came to me. I made many sketches. One day the design for the Lincoln Birthplace came to mind. I got it out of its repose and found that to my mind essentially it solved the double problem of a building with a purpose and yet in spirit akin to the Monument in whose company it stands."

Such in brief is the story of the inception and conception of this Pharmacy Building. Unconsciously the spirit of the design—its elegant simplicity, the richness of its landscape setting, its thorough appropriateness instantly impress artist and layman alike. So, my friends of long struggles now happily ended, let me congratulate you on providing a fitting home for the life-saving service your profession performs, and at the same time paying due tribute to the Savior of our Country. May you persevere in well doing both in spirit and in architecture.

Chairman Hilton referred to the building of the American Institute of Pharmacy as the design of an artist who grasped the ideals of the officers of the AMERICAN PHARMACEUTICAL ASSOCIATION. Mr. Pope was called to Europe; the chairman introduced Mr. Daniel Higgins, a partner of the former.

REMARKS BY DANIEL HIGGINS (in part).

Mr. Pope would be delighted to be here and meet the members of the ASSOCIATION; the other partner, Mr. Eggers,[1] is here and delighted to meet those who have inspired this architecture. He believed that Drs. H. A. B. Dunning and E. F. Kelly were more responsible for this achievement than the architects. The symbolizing of the ideal in one building is extraordinary and this inspiration led the architects to do the very best that was in them. When Mr. Pope first heard of this great ideal he gave it much attention "to bring out something." It gave us a great opportunity and the hope is that we will again have a pleasant association. He turned over the key to Chairman Dunning with a great deal of appreciation for all of his efforts, for without his work and that of Secretary Kelly, this building would not have been a success.

Chairman Hilton thanked Mr. Higgins and introduced Theodore Weicker; who came forward at once with a contribution when the project was started.

REMARKS BY THEODORE WEICKER.

Ladies and Gentlemen:

Not far from the spot upon which we are standing rises one of the most beautiful edifices that we as a people have ever built. In the beauty and the simplicity of its

[1] It was necessary for Mr. Eggers to return to New York.

architecture, it compares with those temples which the Athenians of old set upon the height of the Acropolis. With all the massive beauty of its gleaming marble, that building is yet a symbol—symbol of a man who lived to preserve the highest ideals of this nation. In that temple, as in the hearts of his countrymen, is enshrined forever the name of Abraham Lincoln.

We are gathered here to-day to dedicate another building—a building which is also a symbol. In its classic simplicity, this building represents the high ideals that should forever inspire and guide American Pharmacy.

From the earliest beginnings to the present day, the profession of pharmacy, guided by such ideals and dedicated to the service of the people's health, has grown steadily in importance. Steadily throughout the world it has developed into a body of true organized science, as an aid to medicine.

But American Pharmacy, especially in the last two decades, has been beset by a growing commercial spirit, a spirit generated in part by economic pressure and in part through the failure of our governmental agencies to comprehend the character and the very nature of pharmacy. The hand of greed has striven to destroy the ideals of this profession. It has put in the path of those who would practice it in this country new and greater difficulties and uncertainties. Its pressure has made it almost an impossibility at times for a pharmacist to function without making compromises or sacrifices which endanger his very existence.

The hand of greed must not be permitted to destroy the ideals for which this profession has always stood.—Man lives for something more than bread alone.

The noble building which we have come here to dedicate is in itself a challenge to the commercial spirit which has intruded itself into the field of American Pharmacy, and which menaces the purposes of this high calling. The prominence of the site this building occupies in the Capital of our country, the pure grace and nobility of its design, the well-considered appointments of its interior are the more important to us all because of the challenge they symbolize.

In dedicating this building, then, shall we not also consecrate ourselves anew to the proposition that American Pharmacy shall not be mastered by commercial ambition—that American Pharmacy shall take its rightful place in our civilization as an indispensable aid to the medical profession and as an indispensable force in making a better and healthier America?

To these ends and in this spirit of consecration we dedicate The American Institute of Pharmacy.

Dr. R. B. J. Stanbury, secretary of the Canadian Pharmaceutical Association, was introduced.

REMARKS BY R. B. J. STANBURY.

I bring to you the cordial greetings of the pharmacists of Canada on this epoch-making occasion—the dedication of this beautiful temple to American Pharmacy.

This building will be the center from which pharmaceutical influence will radiate, and here will be the place to which pharmaceutical forces will converge. This structure is not entirely the product of those immediately associated with its construction, although their efforts merit the highest praise. It is the cope-stone of the achievement of those who in past years have dug deep the foundations and who

tirelessly and persistently laid stone upon stone and tier upon tier till to-day this splendid superstructure stands, the admiration of all.

On looking over our drug stores to-day I consider that many of our troubles are of our own making. If good old Galen, the Father of Pharmacy, could look over the parapets of heaven or gaze upon us from his "open view" celestial dispensary, I am sure he would be vexed and humiliated to see the lunch counter, the cigar stand, the magazine rack and various kitchen utensils occupying the principal place in the drug store; while those tinctures and pharmaceutical preparations, which he toiled so laboriously to produce, are hidden away in some obscure corner.

I think, Sir, we need to clear away the excrement which has accumulated in the drug store, during the past generation more particularly, which is making it obnoxious in the nostrils of physicians and a by-word in the press, and by the public. We might not need sixty thousand so-called drug stores in this country, but the thirty thousand survivors doing the real work of pharmacy, becoming a real hand maid and complement of the physician, would command the respect and honor of both physician and public.

I trust, Sir, under the ægis and inspiration of this Building which is being dedicated to-day, and of the men who are giving leadership, there may be a renaissance of pharmacy in this country, and a greater emphasis placed on the professional side of our vocation.

The chairman thanked Secretary Stanbury and introduced William Pfeil, a boyhood friend who was born on the site now occupied by the American Institute of Pharmacy and still resides within a block of the building. He referred to the great interest of Dr. Hilton who had enlisted him in securing part of this property. He gave a brief account of the development of this section.

Chairman Hilton spoke of the dynamic power and executive ability of Chairman H. A. B. Dunning which was largely responsible for the American Institute of Pharmacy. His heart and soul are in the work. Chairman Hilton then introduced Dr. Dunning, who introduced his remarks by saying that his part was the practical side of the work and he wished to impress that he was seeking practical reactions through his address.

REMARKS BY H. A. B. DUNNING.

The AMERICAN PHARMACEUTICAL ASSOCIATION was established 82 years ago, with the object of advancing the science and art of pharmacy and of improving the conditions of pharmaceutical practice.

Throughout all the years that have passed since its organization, the ASSOCIATION has fought for and maintained the ethics, ideals and professional principles which represent the true value of pharmacy.

Its membership has embraced the best of everything in pharmacy—educationally, scientifically and altruistically—including pharmacists engaged in all branches of the profession and industry, and scientists and research workers interested in the advancement of pharmacy. It has emphasized the obligation of the profession to the public which it serves and has striven to throw every possible public protection around the preparation, standardization, distribution and dispensing of drugs, medicines and medical supplies.

The ASSOCIATION, from the beginning, has taken leadership in all those activities which represent the improvement and progress of pharmacy as a public health service. These activities have included pharmaceutical education and training;

the examination and licensing of pharmacists by the states; legislation regulating the practice of pharmacy and limiting it to those so licensed; legislation controlling the identity, purity and strength of drugs; the development of the literature of pharmacy and the stimulation of research for the discovery of new medicinal agents and the improvement of those in use. It has worked to organize pharmacists for their own advancement and for the better service and protection of the people.

Its members have been especially active in promoting and improving drug standards and in the enactment of laws governing the proper distribution of drug products. They have taken an increasingly important part in the decennial revisions of the United States Pharmacopœia. The ASSOCIATION established, revises and owns the National Formulary. These two works recognize and provide standards for the drugs and preparations generally employed by all branches of the medical profession in the treatment and prevention of disease. They were voluntarily observed until their adoption by the Pure Food and Drugs Act, which gave them a legal status.

The ASSOCIATION has furnished models for most of the laws, state and national, which affect pharmacy, and is interested in their constant improvement to meet the advancing requirements of the time.

It is not my purpose to review or even to summarize the great work carried on by the ASSOCIATION in the past eighty years. It is rather my idea to establish a background for the institution which we are here to dedicate. This architecturally perfect, wonderfully located, impressive building is not intended as an expression of pride by the pharmacists of this or other countries—it is to be a service institution to all pharmacy and to all people. It represents an effort to concentrate and equip these agencies interested in the advancement of our profession and the improvement of pharmaceutical service.

The impressive location and handsome exterior of the building will attract the attention of many people who know but little of the value and service of pharmacy and the institution, which will be open to the public, will provide the opportunity to obtain first-hand information.

On either side of the beautiful rotunda, space is provided for a reference library and an historical museum, both of which are intended to illustrate the development of the art and science of pharmacy.

As the building has been occupied only since January, the library and museum are but partly arranged. There is a vast amount of valuable material available and these divisions of the institution will grow in importance as time goes on.

In the rear of the building is a series of offices in which it is intended to accommodate the general activities of the ASSOCIATION and of those related bodies which meet the requirements of Public Resolution No. 18, adopted by Congress, limiting the use of the building to those organizations and institutions serving American Pharmacy on a non-profit basis. Here, in time, will be housed all of those interests which work disinterestedly and coöperatively for the preservation and advancement of professional pharmacy and for the betterment of its public health service.

The facilities offered by this building will be immediately available to the following educational and professional pharmaceutical bodies, and it is hoped that they will make use of them—American Association of Colleges of Pharmacy, Ameri-

can Association of Boards of Pharmacy, Conference of Law Enforcement Officials, National Formulary Revision Committee, United States Pharmacopœial Revision Committee—and a large room is provided for quarterly or semi-annual meetings of the Conference of Pharmaceutical Association Secretaries. Here, all together, will be housed all of those interests, working disinterestedly for the advancement, progress and preservation of professional pharmacy, with the object, through co-operation and earnest endeavor, of correlating the work and efforts which must result in the improvement of pharmaceutical practice and the betterment of the public health service.

Immediately in the rear of this building, within a short time, there will begin the erection of another building, of much the same size, or perhaps a little larger, of a fitting architectural design, by the same architect; a research laboratory, fully equipped, representing a gift from a graduate pharmacist, now a manufacturer of pharmaceutical products used throughout the world.

In the beginning, the work in this research laboratory will be devoted, almost entirely, to the standardization of the drugs and chemicals and preparations recognized in the United States Pharmacopœia and the National Formulary. It is not intended that the work in this research laboratory should, in any sense, conflict with or take the place of, the tremendous amount of voluntary investigative work which is being done by hundreds of pharmacists and other scientists throughout the United States, either representing the efforts of the individual pharmacists, or the special investigations being made in the research departments of large manufacturing drug houses. Most of this work will be self-supporting and will be paid for out of the funds accumulated out of the sale of the National Formulary, or with funds allocated by the United States Pharmacopœial Committee, in payment for special investigative work.

It is hoped and expected that, as time goes on and new funds are available, other special investigations, in coöperation with our numerous pharmaceutical research laboratories, will develop.

I have not said anything in this address about how the building came to be thought of and happens to be here. It is much too long a story to tell, under the present circumstances, but I can give you some of the high lights.

The idea was advanced from time to time during the past twenty-five or thirty years, by different leaders of the ASSOCIATION and, in time, a committee was formed with the purpose of accumulating funds, but no very great progress was made until 1923. At that time a new committee took over the work and, within a year or two, raised approximately half a million dollars, through the contributions of the retail, wholesale and manufacturing pharmacists in this country and from other countries. Over 16,000 donations were made, a few exceeded $50,000 and a number were in excess of $10,000. It is not now appropriate to tell you of the trials and tribulations suffered by your committee in obtaining the site on which this building stands and keeping it after we got it, but I must tell you that, without the coöperation of the Fine Arts Commission and the Parks and Planning Commission of this City, it is doubtful that we would have been able to accomplish our purposes.

In conclusion, I wish to impress upon all of those who have contributed time, labor, interest and money to this project that this building is not a white elephant on the hands of the AMERICAN PHARMACEUTICAL ASSOCIATION. The building is

practically paid for, including land, equipment, furnishings, and its cost is nothing comparable to its value.

The operations of the building, as they stand now, are almost self-sustaining, but not quite. I am confident that those of you who are interested in pharmacy, who are here to-day or will come in the future, will be quite willing to do their part, not only in clearing away the very small financial liability, but will provide an additional sum for the maintenance of the work which is planned to be done here and for conservative and necessary expansion.

I am sure that all of you realize the importance of this project to pharmacy, not only from a professional and altruistic viewpoint, but from a material standpoint. The prestige of pharmacy must be maintained, if it is to continue to enjoy the special privileges and advantages which the public accords it as a profession. I believe that all of us realize that the AMERICAN PHARMACEUTICAL ASSOCIATION represents the greatest assurance for the security of these privileges and that this fine new building gives it a better opportunity than ever before to fulfil its mission.

After concluding his address Chairman Dunning referred to a visit to Mr. Pope's home to discuss plans for the building; he said:

"He told me much the same thing that Mr. Higgins has told you, that he felt that this building, the design for this building, represented the most artistic, and the most important effort of his life from an architectural viewpoint, and that it was close to his heart, and that he would be most happy to see his ideas materialize.

"Mr. Higgins took the opportunity to turn over to me this small key (holding up the key) to this comparatively large building. The relationship of this key in size to the building is just about the proper proportion in my mind, and in the minds of others, to its value to pharmacy and to our people.

"I am passing this key to the man who will make the most use of it, the most practical use of it, and whose heart and soul are tied up in the work that will be carried on in this building, whose heart and soul are tied up and have been tied up in Pharmacy and its progress and advancement for many years, and if he doesn't work himself to death, probably he will spend many more valuable years, valuable to us and to him, in serving pharmacy in the cause of public health."

Chairman Hilton said that no exercises of the AMERICAN PHARMACEUTICAL ASSOCIATION would be complete without a message from Secretary Kelly. He introduced him as one who could always be depended upon and has never been found wanting.

REMARKS OF SECRETARY KELLY.

Ladies and Gentlemen, it is a great pleasure for me to accept, on behalf of the ASSOCIATION, this key to our home. However, I want you to know that it is only a symbol and that from this time on these doors will never be closed to those who are interested in our work.

It has been a very great pleasure to me to work with Dr. Dunning, Dr. Beal and others who have contributed so materially to our efforts to erect this building and I join in Dr. Dunning's expression of appreciation to those agencies of our Government who have been so helpful to us in carrying our plans to completion.

We also assure you, as he has, that this is intended to be a service institution. We hope you will never hesitate in letting us know how to make it more useful to

the health and well-being of the people of this country. We desire to make the most helpful contribution possible to the standardization and improvement by scientific processes of those materials that are used in the prevention and the treatment of disease.

It is my very pleasant duty to thank those of you who have come here to help us celebrate this great event in the history of our organization. We hope to see you here frequently and, particularly, wish to express our appreciation to those who are here representing other than our profession. Our desire is to have the American Institute of Pharmacy represent a closer unity between the organizations that have to do with public health. I thank you very much.

Chairman Hilton stated that when the building was under way for the laying of the corner-stone it was decided to have the ceremonies connected therewith at the time of the dedication of the building. The corner-stone was put in place and a block of marble placed over it so that it is possible to remove the corner-stone and place therein the copper box containing the records, and this will now be done.

He called on former president W. Bruce Philip, who would have had the privilege of laying the corner-stone, if the ceremonies had taken place last year, to ac ompany him for the purpose of placing the copper box in the corner-stone.

This was done in due form and Chairman Hilton, on behalf of the AMERICAN PHARMACEUTICAL ASSOCIATION, thanked those who were in attendance on this auspicious occasion. The musical program for the occasion was rendered by Goldman Band, the program opening with "America" and closing with "Star Spangled Banner."

THE ANNUAL BANQUET OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AND THE PRESENTATION OF THE REMINGTON HONOR MEDAL TO SIR HENRY S. WELLCOME.

More than five hundred members, ladies and guests were seated at the banquet tables on Tuesday evening, May 8th. The occasion was the annual dinner of the AMERICAN PHARMACEUTICAL ASSOCIATION and of affiliated organizations, and the presentation of the Remington Honor Medal to Sir Henry S. Wellcome, of London, by the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION. The delightful function took place at the Shoreham Hotel, President R. L. Swain presiding as toastmaster. The presentation ceremonies were preceded by vocal solos by Mr. Carson P. Frailey, secretary of the American Drug Manufacturers' Association and president of the National Drug Trade Conference, and vocal solos by Mr. S. O. Christie, also a pharmacist. The Board of Commissioners of the District of Columbia was to have been represented by Hon. M. C. Hazen, its chairman, who was prevented by important business and he requested Samuel L. Hilton to speak for him, who did so briefly in the following words:

REMARKS BY S. L. HILTON.

Mr. Toastmaster, Ladies and Gentlemen:

"Just a short while ago I received a telephone message from Commissioner Hazen that he would not be able to be present, and as a result I am called upon to pinch hit for him. Do not expect a home run, that is impossible; if I make a base hit I will feel satisfied.

"On behalf of the Commissioners of the District of Columbia I extend you a most cordial greeting and hearty welcome to the Capital City.

"On such occasions as this I know it is customary to present you with the key of the city; lack of time for one thing and the fact that we have no key to the city prevent such a formality. The Capital City is your city—you require no key to enjoy its hospitality and you are always welcome.

"In extending the greetings of the Commissioners of the District of Columbia, they wish you every pleasure the city affords, and a most successful convention. They are much pleased that your magnificent new building, occupying the prominent position it does, facing the Lincoln Memorial and the Arlington Memorial Bridge and in which they have been so deeply interested, will be dedicated on this occasion.

"We extend you a hearty welcome on all occasions and trust you will visit the Capital City again in the near future and that you will carry home with you the most pleasant recollections of your visit.

"I thank you."

Augustus C. Taylor, speaking as president of the District of Columbia Pharmaceutical Association said:

Mr. Toastmaster, Sir Henry Wellcome, Honored Guests and Friends:

I thank you for this opportunity to extend greetings from the officers and members of the District of Columbia Pharmaceutical Association. We consider it a great privilege to have this chance to act as host to the oldest and most honored pharmaceutical association of our country. We are likewise proud of the same privilege to act as host to those allied associations that are holding their conventions or conferences at the same time.

We welcome you to your capital—Washington the City Beautiful—the city that after the dedication to-morrow of that beautiful building, the American Institute of Pharmacy, will in reality become the home of Pharmacy in America.

The presentation of the Remington Medal and the dedicatory exercises to-morrow will long be remembered by the members of our ASSOCIATION and we will always be proud of the part taken by the District of Columbia Pharmaceutical Association toward making these events a success.

The District of Columbia Pharmaceutical Association is almost as old as its beloved parent association but with an age of 76 years it is still going strong. Founded in 1858, records show continued activities, excepting the period of the Civil War, to the present time. Looking back over this long period we find this association always in the front rank striving to improve the standing of Pharmacy. At all times we find members of our Association working in some way or another to protect the welfare of the members of our profession.

Many of our members have been honored with high offices in the AMERICAN PHARMACEUTICAL ASSOCIATION or allied associations. Five have been president of the A. PH. A.: John S. Kidwell 1858–1859, W. S. Thompson 1893–1894, Oscar Oldberg 1908–1909, S. L. Hilton 1921–1922, W. B. Philip, a Californian when chosen, but a member of our Association during his term of office—1932–1933. W. H. Bradbury served as president of the Federal Wholesale Druggists' Association, F. T. Stone of the N. A. R. D., and A. C. Taylor of the N. A. B. P. Many of

our members hold the chairmanship on important committees in all the National associations.

As your host we wish you to have a good time and a successful convention and it is our hope that you will want to come again. This is not the first time the A. PH. A. met in Washington and we trust it will not be the last.

This city is a great place for conventions. A fortnight ago we had a grand gathering of medical men; last week a large group of nurses from all over the country graced our city; this week we have this wonderful gathering of pharmacists, and we will be followed in the near future by the undertakers.

Thank you.

After the conclusion of the dinner, which was enjoyed by the participants of the feast, the toastmaster presided over the presentation ceremonies for New York Branch, A. PH. A.

Sir Henry S. Wellcome, Remington Medalist.

Inscription on Remington Medal.

Joseph P. Remington—Face of Medal.

REMARKS OF ROBERT L. SWAIN.

We now come to the impressive feature of the evening—awarding the Remington Honor Medal. This medal, given in memory of that great pharmaceutical teacher and leader, Professor Joseph P. Remington, was established by the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION. The award has heretofore been presented at some function of that body. This year, however, in recognition of the unusually distinguished recipient and the fact that he was in attendance at this convention, the New York Branch has done the ASSOCIATION the courtesy of making the award at this meeting.

Dr. Charles W. Ballard, president of the New York Branch, would have made the award, but he is compelled to be absent because of the serious illness of his father. Dr. Hugo H. Schaefer, in whose mind the Remington Medal was first conceived, was to have acted for Dr. Ballard, but, at the last moment, Dr. Schaefer found it would not be possible for him to reach Washington until to-morrow afternoon. And so, I shall act for the New York Branch in the remainder of the evening program.

The Remington Honor Medal for 1934 has been awarded to Sir Henry S. Wellcome, truly one of the most distinguished citizens of the world. This medal is awarded annually to that pharmacist making the most valuable contribution to pharmacy either in the year preceding or in a collective sense over a period of years. Sir Henry meets every qualification which could be set up, and he richly merits the

honor. He is not a stranger to distinction. Recently he was knighted by his King in recognition of his great contribution to humanity. He is a pharmacist of international renown. A British subject, his interests have embraced the world, and his benefactions have brought life and happiness to the people of every land. He loves science largely for herself alone, and his research projects have added much to scientific knowledge and to an understanding of great scientific truths. He loves science, too, because of her contributions to medicine, chemistry, pharmacy and sanitation, all of which so closely affect human beings and the conditions under which they live.

Sir Henry has given lavishly of his time, lavishly of his fortune and lavishly of his heart that medical science might develop and expand. He has established great research laboratories for the study of health and medical problems. His objective has been to make life a richer, fuller and deeper thing.

He long since ceased to belong to one country. He has become as universal as the science to which he is so greatly devoted. The bigness of his heart, the embraciveness of his mind, the universality of his humanity have made him a citizen of the world and the benefactor of peoples everywhere. In honoring Sir Henry S. Wellcome, pharmacy in a much truer sense honors itself. It is a recognition of the great debt we owe him, and a recognition, too, of his far-flung philanthropies in the field of public health. As he has made life more abundant for others, so has he created in us a higher ideal and a sounder conception of the real aims and purposes of our profession.

After the conclusion of these remarks the chairman introduced Robert P. Fischelis, as a former president of New York Branch, A. PH. A.

Mr. Leander McCormick-Goodhart, representing the Ambassador of Great Britain, was then introduced; he spoke as follows:

Mr. Chairman, Sir Henry Wellcome, Members of the American Pharmaceutical Association:

It is the old, old story. When I had the pleasure of talking over the telephone this morning to Dr. Kelly, your secretary, there was a reciprocal understanding that if I attended your dinner this evening I would not be called upon to address you. The result is that here I am standing on my feet. As representing the British Ambassador, my message is a brief but very sincere one. Sir Ronald Lindsay asked me to extend to you his very cordial greetings and his profound regrets that he was unable to be with you this evening owing to an unavoidable engagement elsewhere. Sir Ronald would have been glad to be here, not only on account of the pleasure which it would have given him to see his distinguished compatriot honored by the award of the Remington Medal, but also for other reasons. He would have wished to be here in order to congratulate you on the opening to-morrow of your superb new building which occupies one of the finest sites of the city nearly opposite to the noble Monument of one of your greatest Presidents. He would also have appreciated being at a dinner held by what he understands to be one of the oldest scientific associations in the United States. And, lastly, he would have been especially glad to be here as, since I am informed by the chairman, the Pharmaceutical Association is the one organization which is not permitted to make mistakes. We

diplomats often make mistakes and it is evident that we have a great deal to learn from yourselves.

If I may be permitted to make a personal reference, I have been interested in pharmacology for the last 39 years. It began this way. The chairman has referred to my being an adopted Marylander, but 39 years ago I was a small boy playing in a sandlot in a little village in the mid-West—Chicago. I got a pain. The doctor came to see me. It turned out to be the appendix. He was a Homeopath and he gave me some delicious little pills which cured the trouble. It was a great opportunity to study the physiology of the effect of drugs on the human system! Well, for 38 years those little pills did their trick, but last year they failed me and I was obliged to have it out.

I wonder whether any of you have ever thought of a connection between pharmacology and poetry. Perhaps some of the charming ladies here present have thought of it in this light. In 1823 one of the most distinguished of British poets, Lord Byron, was in Florence. He went into a drug store and presumably bought himself something. But he carried away from the drug store a printed advertisement of one of the preparations sold in there, and he took this advertisement back to his lodgings in Genoa. He eventually threw the advertisement into the wastepaper basket but not without having written one of his immortal poems on it consisting of about twenty lines. I hold it up here for you to see. Unfortunately it is so illegible that I am unable to read it. This little incident surely proves the nobility of the art to which you have devoted yourselves!

It has given me a great deal of pleasure to be present with you this evening. I thank you very much.

The toastmaster introduced Charles Moore, chairman of the Commission of Fine Arts, who spoke as follows:

Mr. Chairman, Sir Henry Wellcome, Members of the Association:

From going to and fro in the earth and from walking up and down in it, occasionally one meets great men. Such may be divided roughly into those one knows and those who know him. I have been asked to speak words of greeting because of a belief that I both know and am known by that great benefactor of the human race, our guest, Sir Henry Wellcome.

I met him first about the end of the World War, in the hospitable home of Dr. and Mrs. Charles W. Richardson, in one of the small companies Dr. Wellcome insisted upon before accepting an invitation. The scene rises before me as a dream. The white flowers on the table, the mellow light of the candles falling softly on the dark hair of Dr. Wellcome as with bent head he quietly told of his first experience with malaria by a virulent infection from a mosquito at Panama, and of a second equally virulent infection from a similar cause on the upper waters of the Amazon. Told also the tragic tale of Gordon's beneficient rule in the Egyptian Sudan, of his assassination by a hired traitor, the massacre of the heroic garrison of Khartoum and the sixteen years of devastation during which every vestage of civilization was wiped out and more than twelve million men, women and children were ruthlessly slaughtered. At the time of Lord Kitchener's final victory over the devastating Dervishes a large portion of the population was suffering from tropical fevers; and thousands of Kitchener's own men were stricken by mosquito-borne diseases.

Modestly he told us that he was one of the first civilians, after Kitchener's reconquest, to journey to the Upper Nile to study conditions in the Sudan. As a result he offered to equip complete tropical research laboratories as adjuncts to Gordon College at Khartoum. His camel caravans carried help by land and a floating laboratory bore relief up the many Nile tributaries.

In all this welfare work there was a spice of romance, for this region was once the kingdom of the Queen of Sheba, whose visit to King Solomon is so severely reprehended by sex-moralists of to-day. The capital of her Ethiopian kingdom, Dr. Wellcome was then excavating with a force of several thousand Sudanese. He had not as yet found her jar of cosmetics.

I suppose that Dr. Wellcome (as he then was) and I were drawn together by the fact that the two Squibbs, father and son, were my close friends, as was also Frank Ryan of Parke, Davis & Co.; and that I had known both Mr. Parke and Mr. Davis.

Incidentally I may note the coincidence that as the Wellcome Medical Museum in London is built on the foundations laid by Burroughs, Wellcome & Co., so the Freer Gallery of Far Eastern Art, here in Washington, each preëminent in its special field, was financed and is maintained largely from the profits of Parke, Davis & Co. The restorative qualities of pharmacy reach even into the fine arts. Sir Henry's new Research Institution in London would be at home architecturally with the Government buildings now under construction here in Washington.

Next, I met our guest at a little dinner given by Mrs. Gorgas—Lady Gorgas, by rights—widow of Surgeon General William C. Gorgas, whose achievements in sanitation are commemorated in the Gorgas Memorial Institute of Tropical Medicine at Panama. That out-post in the strife for health among our southern neighbors owes its very existence to the example of Sir Henry Wellcome and to his testimony before the House of Representatives Committee on Foreign Affairs on January 20, 1928. When others doubted or hesitated, Dr. Wellcome had powerfully supported Dr. Gorgas in Panama.

I was honored by being one of the six or seven guests at a luncheon given by Dr. Wellcome to Sir St. Clair Thompson, then president of the Royal Medical Society of London—a Scotchman with a rare sense of humor. Also I attended the large and brilliant luncheon he gave to his fellow-working archæologist, Professor Reisner.

Latterly our meetings have been occasional indeed, but always with the cordiality that knows no intermissions of time or distance. While visiting Washington he intrenches himself in his fastness, where he is ever plotting some new scheme for doing good. Too often we, his friends, are reminded of Lowell's changeling—"we only know he came and went."

From the inception of the project for building your Pharmacy Building, Sir Henry has been vitally interested in it: in its location, its design and its surroundings. Possibly it speaks to him of his birth in Wisconsin, of his training in Chicago and Philadelphia, of his early travels on this hemisphere from Alaska to the equator. At any rate it shows that his change of skies implies no change of heart. So, Sir Henry Wellcome, benefactor of humanity in four continents, we greet you.

Secretary R. B. J. Stanbury, of the Canadian Pharmaceutical Association, was introduced as the next speaker; his remarks follow:

Mr. President, Members of the American Pharmaceutical Association, Sir Henry Wellcome, Ladies and Distinguished Guests:

I bring to you the congratulations and felicitations of the president, officers and members of the Canadian Pharmaceutical Association on this auspicious 82nd Annual Convention of your ASSOCIATION.

Here you are assembled in your national capital with its historic environs and its rich traditions, to deliberate on the pharmaceutical problems of this country. We, in Canada, look on this parliament of American Pharmacy with more than passing and casual interest, for whatever decisions you arrive at have their repercussions in our country.

Two years ago we had the pleasure of welcoming you to the city of Toronto. It was the occasion of the 25th anniversary of the Canadian Pharmaceutical Association and this reminds me that in 1877 you celebrated your 25th anniversary in the city of Toronto and elected a Canadian, the late William Saunders, as president of the AMERICAN PHARMACEUTICAL ASSOCIATION.

This meeting in Toronto in 1932 was a unique and delightful event. We had representatives of the three great English-speaking pharmaceutical bodies of the world—England, United States and Canada. We were able at close range to get the viewpoint of each other and gain a clearer understanding of the aims and objects of our various associations.

That meeting will always live in my memory and I believe will always be cherished by those who were fortunate enough to be present.

I am glad to be here to-night and to have the honor and opportunity of joining with you in greetings to Sir Henry Wellcome. He is home on his native heath, receiving the warm-hearted and affectionate tribute of those who have watched his development from an apprentice lad in a frontier settlement of Minnesota all through his years of study and research and his intense interest in ethnological and archæological subjects.

Sir Henry has been honored by membership in many scientific and medical societies and has had degrees conferred on him by several universities.

King George created him a Knight in 1932. This evening you will present him with the Remington Medal, the highest honor the profession of pharmacy in America can bestow, which I believe Sir Henry will consider the crowning glory of his career.

Sir Henry—you have conducted research in South America, you have explored the upper regions of the Nile, you have delved into the history of medicine and carried on research in medicine, but in all your research and exploration, I do not believe you have heretofore found the priceless jewel you have discovered at this banquet to-night—the friendship and love of your fellow pharmacists.

> Up from the day of small beginning
> Out to the wide world's utmost ends,
> There's nothing worth the while of winning
> But friendship and the love of friends.

I hope you will live, Sir, for many years to enjoy your well-earned honors and to pursue your research in the interests of science, and for the benefit of humanity.

Dr. Robert P. Fischelis, a former president, delivered the message of President C. W. Ballard, of the New York Branch A. PH. A.—it follows:

"While in modern times the universality of science transcends both political boundaries and racial differences, it is only in that branch of science dealing with the art of healing that this common accord has prevailed almost unbroken from antiquity. Practitioners of medicine in early times regarded service as one of the obligations of their calling and so it remains to-day. Empiricism has given way to rationalism in therapeutics; unsubstantiated opinions have been replaced by certainty and accuracy in diagnosis; but service to mankind still remains a motivating factor in medicine and its closely allied calling—pharmacy. This service is extremely varied in its scope and the manufacture of suitable remedial agents contributes in no small measure to the armament of the physician in his unceasing war on disease. When, as in several instances, the pharmacist in his efforts to perfect medicaments undertakes extensive research projects, either personally or by unstinted support, he strengthens the bonds between medicine and pharmacy and, what is of greater import, he immeasurably increases the service these callings can render mankind.

"It is eminently fitting that the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION, through the establishment of the Remington Honor Medal, should commemorate one who labored long and earnestly for American pharmacy. It is for meritorious service in pharmacy and wisely without restriction as to the nature of this service thus recognizing the various activities within the scope of our calling. If my recollection is correct, this is the first instance of its award to one other than a citizen of this country. In its bestowal upon Sir Henry Wellcome we not only recognize his labors in pharmacy but also establish a precedent which prevails in the award of the Hanbury Medal of the British Pharmaceutical Society. I consider myself singularly fortunate in a long association with one who has been so honored by the pharmacists of Britain, and to you, Sir Henry, I bring this letter of felicitation from an American Hanbury Medalist—Dr. Rusby.

"And now I turn to those who can adequately speak of the widely diverging interests of the Remington Medalist of 1934, Sir Henry Wellcome.

"It is a happy coincidence that he, who is senior among the past presidents of the New York Branch in attendance on this occasion, should be a graduate of the Philadelphia College and at a time when Professor Remington was a member of that faculty. As president of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION, I request Dean Arny to award the Remington Medal to Sir Henry Wellcome."

THE PRESENTATION OF THE MEDAL.

Dr. H. V. Arny opened his remarks by expressing regrets over the unavoidable absence of his predecessors as chairman of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION: Messrs. Diner, Raubenheimer, Diekman and Bigelow, extending their personal greetings and their regrets.

He then spoke of the life of the 1934 recipient of the Remington Honor Medal as one of the world tales of American Pharmacy; a story which he delights to recite each year to the pharmacy students at Columbia. Henry S. Wellcome, son of an American pioneer; a pioneer in his own right, the boy of eight who followed the

covered wagon of his father from Wisconsin to Minnesota; the lad who was the playmate of the now famous Mayo Brothers of Rochester; the apprentice in the drug store of the father of these two gifted men; the student at Philadelphia who sat at the feet of Procter, Maisch and Remington; the eminently successful business man in England and throughout the world. The British philanthropist and archæologist who received the accolade of Knighthood from his appreciative Sovereign.

The Remington Medal was then presented with the following words:

Sir Henry: In the name of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION I have the great honor of presenting you with this, the 1934 Remington Honor Medal. I congratulate you upon receiving this distinction. I congratulate the AMERICAN PHARMACEUTICAL ASSOCIATION upon so worthy a son of American Pharmacy, so faithful a member of our ASSOCIATION, so eminent a citizen of the world upon whom to bestow the highest gift that it offers its sons and daughters.

Sir Henry S. Wellcome, the recipient of the Medal, briefly and feelingly acknowledged the honor, referring to Professor Remington as member of the faculty of Philadelphia College of Pharmacy when he was a student of that institution. He also paid tribute to William Procter, Jr., John M. Maisch, Robert Bridges and other pharmaceutical educators of that period. He concluded with words of thanks and appreciation and accepted the Medal as a distinctive honor.

This concluded the ceremonies of the evening and many of the guests of this interesting event remained to enjoy the ball and program of music arranged for them by the Entertainment Committee.

DR. CHARLES MOORE.

DR. H. A. B. DUNNING.

The chairman of the present Campaign Fund Committee has been asked to assume the chairmanship of the Maintenance Committee for the American Institute of Pharmacy.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council." —Part of Chapter VI, Article VI of the By-Laws.

ARTICLE III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meeting of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

BALTIMORE.

The regular monthly meeting of the Baltimore Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held at the Hotel Emerson, Monday, April 23rd, at 8:15 P.M., Vice-President Reindollar in the chair.

The Chair called for a report of the last meeting which was read by the secretary. Announcement of the chairmen of the standing committees for the year was made as follows: *Committee on Membership*, Gilbert Joseph; *Committee on Professional Relations*, Simon Solomon; *Committee on Science and Practice of Pharmacy*, Robert S. Fuqua; *Committee on Education and Legislation*, A. G. DuMez.

A communication from Secretary E. F. Kelly of the A. PH. A. was read. Dr. Krantz introduced the speaker of the evening, Dr. A. R. L. Dohme, who spoke on "Germicides." He traced the early work of Pasteur, Koch and Klebs and other famous bacteriologists and related how the first germicides were developed. He mentioned the early work on iodine, iodoform, mercury, gold, the dyestuffs, Atoxyl, Ehrlich's 606, phenyl mercuric nitrate, the phenol germicides, the organic mercurials, chlorine compounds, and finally related in an interesting way the discovery of the antiseptic properties of the alkyl resorcinols.

At the conclusion of the address a rising vote of thanks was tendered Dr. Dohme.

Before closing the meeting a vote was taken on the appointment of a delegate and an alternate to the House of Delegates of the AMERICAN PHARMACEUTICAL ASSOCIATION at the May meeting. President B. Olive Cole was elected to serve as delegate and Secretary-Treasurer C. Jelleff Carr was elected to serve as alternate.

C. JELLEFF CARR, *Secretary-Treasurer.*

CHICAGO.

The monthly meeting of the Chicago Branch was held Tuesday, April 17, 1934, at the University of Illinois College of Medicine.

The speaker of the evening was Dr. Bernard Fantus, assisted by the Misses Hattie and Josephine Dyniewicz.

Dr. Fantus chose as his subject "A Study of Vehicles for Medicines."

Each member of the audience was presented with an outline of the vehicles to be discussed.

Dr. Fantus began his discussion with the statement that he thought medicine in a solid form had many advantages over those of liquid form but that we must have good vehicles for medicines not subject to solid administration.

Some of his outstanding remarks were—the hope that the day will soon come when no nasty medicine will be prescribed, that there is almost a specific vehicle for every medicament.

It was shown with Syrup of Acacia that colloidal substances lessen the sharpness of taste of drugs. The syrup was flavored with oil of wintergreen.

Artificial Syrup of Cherry was presented, it being proposed that we need more fruit flavors, that this syrup is always uniform and quite suitable for the administration of acids. Hydrochloric acid was used to demonstrate its masking properties.

Syrup of Chocolate, with oil of theobroma added, was discussed. The Pure Food and Drug Act allows the syrup to be called "of chocolate" only when the oil is present.

Syrup of Cinnamon—artificial, was next presented. This syrup was proposed to have the advantage over the present U. S. P. product in that the tannins of the crude drug would not be present. The syrup was made by saturating syrup with the oil of cinnamon. Iron and ammonium citrate were used to show the power of masking of taste of the syrup.

Aromatic Syrup of Eriodictyon was exhibited as "the best vehicle for alkaloids." It was shown that the disguising property of the syrup lies in the resins of the drug.

Syrup of Strawberry—this syrup was made from the natural fruit juice and methenamine was used as the medicament to show its power of disguising taste.

Aromatic Syrup of Glycyrrhiza was suggested to take the place of the present N. F. formula. It was propounded that only the first fifty per cent of extraction be used in order to avoid the extraction of the acrid principle. The revised formula would also contain an anise bouquet to enhance the taste of the glycyrrhiza. Salty medicaments were used to show the special disguising powers of the syrup.

Compound Syrup of Sarsaparilla was shown to become much clearer with the reduction in quantity of oil and Syrup of Bromides, N. F. was cited as an example.

Isoelixir, an elixir of the same alcoholic concentration as the menstruum of the preparation for which it is to serve as the vehicle, was demonstrated. This elixir is made by mixing in the correct proportions "Elixir Aquosum" and "Elixir Alcoholicum."

Alkaline elixir of Eriodictyon was suggested as a new formula requiring a vehicle of a high alcoholic concentration.

It was shown that many bitter substances more soluble in alcohol than in water lose their bitter taste in proportion to the higher per cent of alcohol present in the vehicle.

Phenobarbital was shown as an example where this holds true.

Dr. Fantus concluded the report by answering the questions of the audience and inviting those present to inspect and taste the vehicles presented.

LAWRENCE TEMPLETON, *Secretary.*

A paper on "The Coöperation of the Hospital Pharmacist and Staff," by William Gray has been received and will be published in a later issue of the JOURNAL. Articles by Dr. Bernard Fantus and co-workers on vehicles must also be deferred to a succeeding number.—*Editor.*

NEW YORK.

The length of this interesting report prevents complete publication in this issue of the Journal.

A meeting to commemorate the Fiftieth Anniversary of the New York and Brooklyn Formulary was held by the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION on Monday evening, April 9, 1934. As usual the meeting took place in the College of Pharmacy, Columbia University. About seventy-five members and their guests attended.

After the meeting had been called to order by the President, Dr. Ballard, the report of the secretary was heard. This was read, amended and accepted. The treasurer's report was read.

Due to the illness of Mr. Lehman, a report from the Committee on Education and Legislation was rendered by Mr. Dyer. His report follows:

Assembly bill 417 amending the pharmacy laws by permitting the Board of Pharmacy to control the manufacture and sale of all medicines (including proprietaries) which are of a poisonous, deleterious and habit-forming nature has been passed in assembly. The original bill called for "containing poisonous, deleterious and habit-forming ingredients" but it was amended in the assembly: this has weakened the bill. The prospects for its adoption by the Senate are good.

National Recovery Administrator Hugh S. Johnson has issued an order, effective April 8th, tightening the "loss limitation" provision in the code for the retail drug trade. The order reads:

"Inasmuch as the vast preponderance of drug store products is distributed through small drug retailers who are unable to purchase on a quantity basis but who perform services which are essential to the welfare of those in their communities, and whereas such services cannot adequately be performed through the facilities provided by their competitors, and whereas, in some cases sales are made to consumers by such competitors at prices below the lowest cost of purchase normally obtainable for such merchandise by small drug retailers, and whereas in most instances such sales prices are not a true indication of the general level of prices of such competitors and no general benefit to those in the community accompanies the same, but such prices are in fact in the nature of bait offers of merchandise to attract trade, it is hereby declared an unfair trade practice and is prohibited by this code for any drug retailer to sell any drugs, medicines, cosmetics, toilet preparations or drug sundries at a price below the manufacturer's wholesale list price per dozen, provided, however, that in the case of biologicals or other of the above-mentioned products which are not customarily sold in dozen or greater lots the Code Authority may fix a comparable unit quantity, and provided further that any discount, free deal or rebate which is made available to all purchasers of dozen lots or comparable quantities, shall be considered as part of the manufacturer's wholesale list price."

Following Mr. Dyer's report considerable discussion developed in which Messrs. Wm. C. Anderson, E. F. Kelly, J. Seley and Fred Schaefer took part.

Chairman Kassner, of the Professional Relations Committee next reported on the Physicians and Pharmacists' meeting recently held by the Academy of Pharmacy at the Academy of Medicine.

A special report was received from Chairman H. H. Schaefer, of the Remington Medal Committee, who announced that Sir Henry Wellcome had been awarded the Remington Medal for 1934, the presentation to take place at the Convention of the AMERICAN PHARMACEUTICAL ASSOCIATION in Washington.

The chairman then proceeded with the special program for the evening and called upon Dr. Charles F. Schleussner, one of the two surviving members of the original New York and Brooklyn Formulary Committee, to tell about the early organization and development of a formulary which has grown to become the National Formulary. (This will be printed in a later number of the JOURNAL.)

A letter from Dr. John Uri Lloyd, commenting on the occasion was then read. The complete text of the letter will be included in a further report.—*Editor.*

Dr. H. V. Arny was next called upon to represent the New York College of Pharmacy. Dean Arny called attention to the exhibit of all editions of the National Formulary, the New York and Brooklyn Formulary, and to Lloyd's Elixirs which were on display. Several of these books had been presented by members of the early formulary committees. Dean Arny went on to say that the Formulary Committee membership list was literally made up of a pharmaceutical hall of fame, with such names as Ebert, Hallberg, Hoffmann and others. Dean Arny also discussed briefly the methods employed for carrying out revisions of the National Formulary and he closed his remarks by explaining the broadening of scope which had taken place.

A brief communication relative to the celebration from Dr. Robert L. Swain, President of the AMERICAN PHARMACEUTICAL ASSOCIATION, was now read.

Following this, President Ballard introduced Dr. Evander F. Kelly, secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION, who addressed the meeting. This is held over for a later report.

After Secretary Kelly's address letters from Chairman Gathercoal and Secretary Nichols of the Sixth Revision Committee of the National Formulary were read. Chairman Gathercoal had also submitted a report on progress of revision. This will be reported later.

Following this there was some slight discussion and after a rising vote of thanks was extended to all speakers, Mr. Fred Schaefer called the meeting closed.

RUDOLF O. HAUCK, *Secretary.*

PHILADELPHIA.

The April meeting of the Philadelphia Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held in the auditorium of the Philadelphia College of Pharmacy and Science, April 10, 1934.

President Barol called the meeting to order, and the minutes of the previous session were read and approved. In the absence of the chairman of the membership committee Dr. Frank Eby proposed the following for membership in the local branch: F. R. Greenbaum, David J. Phillips and Albert C. Moreau.

President Barol then announced the committee appointments for 1934–1935: *Committee on Practical Pharmacy, Chairman,* Quintus Hoch; Leo G. Penn; George T. Pickett. *Committee on Professional Relations, Chairman,* H. Everett Kendig; Wilmer Krusen; W. L. Cliffe. *Committee on Membership, Chairman,* George K. Schacterle; Frank H. Eby; Frank F. Law; W. J. Stoneback; Harvey P. Frank; Adley B. Nichols. *Committee on Entertainment,* George E. Byers, *Chairman.*

The principal speaker of the evening was Sergeant W. C. Leinhauser, Chief of the Narcotic Squad of the Philadelphia Bureau of Police, who spoke on the illicit trade in narcotics in the vicinity of Philadelphia.

He began by displaying various opium pipes devised by opium smokers from such commonplace articles as beer bottles, perfume bottles and tin cans, easily destroyed when expecting a visit from the naroctic agent. It was explained, however, that opium smoking is a thing of the past, most of the addicts now using crude hypodermic injections of morphine.

Between 2000 and 3000 addicts and former addicts are now living in the vicinity of Philadelphia, and among the last 200 arrests 90 per cent had been arrested three or more times for larceny. Theft is the chief means the addict uses to obtain funds for narcotic drugs.

Sergeant Leinhauser described the various methods used by traffickers in narcotics in smuggling them into the city. Most of Philadelphia's supply is brought from New York and peddled in small amounts to users, the packages often being disguised as various insignificant articles.

The speaker made an appeal to the pharmacists of Philadelphia to aid in the enforcement of the narcotic act by observing the following precautions:

1. Maintain careful narcotic records.
2. Keep narcotic drugs in a locked cabinet at all times.
3. Carefully scrutinize every narcotic prescription and the person who presents it. In case of doubt as to authenticity, delay filling the prescription until the naroctic squad is notified.

During the discussion after the talk Sergeant Leinhauser gave the following information:

During his nine years as Chief of the Narcotic Squad he has made no seizure of codeine, and knows of no primary codeine addicts.

Since the Pennsylvania enactment against the use of Marihuana (referring to Cannabis) 30 persons possessing it have been arrested in Philadelphia. Its use is mainly confined to the poor negro classes. Sergeant Leinhauser has smoked this drug as an experiment but received no effect whatsoever.

The selling of narcotics to school children is a myth and merely represents perennial material for newspaper stories. Of the 175 to 225 arrests of users in this vicinity only a few are under 21 years of age.

Very little opium is used by the Chinese population of Philadelphia, and Chinese users do not abuse the habit. The Chinese do not permit white people to frequent their quarters. It is the opinion of Sergeant Leinhauser that once a person has become an addict he always comes back to the habit, even when supposedly cured.

At the close of the meeting a rising vote of thanks was accorded Sergeant Leinhauser.

E. H. MacLaughlin, *Secretary.*

PITTSBURGH.

The Pittsburgh Branch of the American Pharmaceutical Association celebrated the twenty-fifth anniversary of its founding with a dinner and joint session of the Pittsburgh Branch and the Pittsburgh College of Pharmacy Students' Branch, Tuesday, April 10, 1934.

Dinner was served to seventy-five members and guests at the Hotel Henry. President Raymond Hornfeck introduced Robert R. Gaw as toastmaster. In his introductory remarks Mr. Gaw stated that the "Pittsburgh Branch was founded twenty-five years ago at the Pittsburgh College of Pharmacy, pursuant to the action of the Board of Trustees, and that Dr. Julius A. Koch served as first president. B. F. Pritchard was elected first secretary, but resigned very

shortly after election and Dr. Louis Saalbach was elected to fill the vacancy. Dr. Saalbach served as Secretary-Treasurer until February 19, 1929.

The chairmen of the first committees were: *Membership*, William R. Bell; *Practice*, Louis Emanuel; *Medical Relations*, Albert F. Judd; *Education and Legislation*, John R. Thompson; *Publicity*, James H. Beal.

Mr. Gaw read a communication from Dr. Julius A. Koch to the effect that "he would be absent from the city on the 10th and could not take part in the celebration of the twenty-fifth anniversary of the founding of the Pittsburgh Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION."

A communication from the parent body extending congratulations to the Pittsburgh Branch on the completion of twenty-five years of useful service to Pharmacy was signed by R. L. Swain, E. F. Kelly and E. G. Eberle.

The toastmaster called first on Dr. Albert F. Judd to tell something about early experiences of the society. Dr. Judd told about the contacts made with medical practitioners and problems encountered in the early period.

Dr. Louis Saalbach continued the relation of facts and told how the Pittsburgh Branch grew to its present position among pharmaceutical societies.

Dr. George D. Beal, Assistant Director of the Mellon Institute of Industrial Research, delivered the principal address. He outlined the early history of the Branch and indicated the importance of the various local branches in the work of the parent association; he read excerpts from the code of ethics of the AMERICAN PHARMACEUTICAL ASSOCIATION to illustrate the fact that its principles are so fundamental and basic that they apply equally as well to-day as they did when adopted over eighty years ago. Dr. Beal also pointed out the necessity for organization in our present economic scheme, illustrating the need for local, state and national units, but clearly indicated the inherent danger of duplication of these units. Dr. Beal concluded by paying a glowing tribute to outstanding men in Pharmacy, telling of his experience with some he had known personally, pointing out that the various callings are not professions in themselves but become so according to the character of the men in them.

President Albert Gabig of the Student Branch of the Pittsburgh College of Pharmacy, responded on their behalf.

Dean C. Leonard O'Connell responded for the Pittsburgh College of Pharmacy. Announcement was made that a meeting would not be held in May, but meetings will be resumed in September, 1934.

FRANK S. MCGINNIS, *Reporter*.

A. A. C. P. AND N. A. B. P. DISTRICT NO. 6.

The Boards and Colleges of Pharmacy, District 6, met in Fort Worth, Texas, March 22nd, in a one-day session; E. M. Joseph, *national vice-president*, presided over the meeting. C. B. Allison, Dallas, Texas; C. M. Brewer, Oklahoma City; H. H. Horst, Stuttgart, Ark.; Dr. D. B. R. Johnson, Norman, Okla.; Frank A. Milne, Pratt, Kansas; John A. Weeks, Ballinger, Texas; Herbert W. Parker, Jonesboro, Ark.; Dr. W. F. Gidley, Austin, Texas, and Mac Childs, Eldorado, Kansas, addressed the meeting, which followed a regular examination of the Texas Board at which time 210 applicants presented themselves.

Herbert W. Parker read a paper on "The Difference in Examinations after Prerequisite Laws Become Effective," which was well received. Social features included a banquet in honor of the visiting delegates at the Blackstone Hotel at which Josh Lee, the sage of the Southwest, was principal speaker, followed by a dance, given by the druggists of Fort Worth. The Texas Board of Pharmacy entertained with a luncheon in honor of the delegates, and the druggists of Dallas entertained with a stag party at the Blackstone.

CONSTITUTIONALITY OF DELAWARE PHARMACEUTICAL LAW.

A test case is being made which involves the constitutionality of the Delaware pharmacy law on motion of Peoples Drug Stores, Inc., to quash an indictment charging the Company with alleged violation. The Delaware statute is very similar to the former Pennsylvania Ownership law.

ASSOCIATION BUSINESS

THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1934–1935.

Office of the Secretary, 2215 Constitution Ave., Washington, D. C.

LETTER NO. 9.

May 7, 1934.

To the Member of the Council:

The Second Meeting of the Council for 1933–1934 was held in the Shoreham Hotel, Washington, D. C., on Monday, May 7, 1934, beginning at 9:30 A.M., with the following members present: Hilton, Swain, Adams, Caspari, DuMez, Christensen, Eberle and Kelly.

54. Committee on Finance. The following report was submitted by Chairman Swain:

"The undersigned has attempted to carry on as best he could the splendid work done for a number of years by former Chairman Bradley and desires to record his appreciation of the effective services of Dr. Bradley. The financial affairs of the ASSOCIATION are conducted principally by Treasurer Holton and Secretary Kelly, with whom the chairman and members of the Committee have coöperated as fully as possible.

"The routine work of the Committee has been carried on as heretofore and the Committee has no recommendations to submit.

"In submitting the Budget for 1934 (See Item No. 30, Council Letter No. 5) a complete statement with respect to income and disbursements was given. At that time an estimated list of receipts for 1934 was made and the Committee is gratified to report that if the ratio of receipts to April 30th is continued for the year, the estimated receipts will be realized. The expenses for the period to April 30th are also being kept within the appropriation. It is impossible as yet to give accurate information as to the cost of maintenance of the Building and this item will therefore be discussed later. The expense of transferring the offices of the ASSOCIATION from Baltimore to Washington were charged to Miscellaneous Expenses and it probably will be necessary later to ask for an addition to this appropriation.

"The estimate of receipts provided for the transfer of $4500 from the accumulated interest of the Life Membership Fund to the Current Fund to balance the Budget. It is too early in the year to estimate how much, if any, of this amount it will be necessary to transfer.

"The Committee believes the ASSOCIATION to be in an entirely sound condition financially."

The report was accepted on motion of Adams—Caspari, and after a general discussion of the finances of the ASSOCIATION.

55. Committee on Property and Funds. Chairman Swain submitted the following report:

"In accordance with Article VI of Chapter IV of the By-Laws of the Council, the Committee on Property and Funds submits its report. The Committee recommends to the Council the following banks and safe deposit vaults:

DEPOSITORIES FOR FUNDS.

The Baltimore Trust Company, Baltimore, Md.
The Baltimore National Bank, Baltimore, Md.
The Maryland Trust Company, Baltimore, Md.
The Merchants and Newark Trust Company, Newark, N. J.
The Boston Penny Savings Bank, Boston, Mass.

DEPOSITORIES FOR SECURITIES AND RECORDS.

The Baltimore National Bank, Baltimore, Md.—Safe Deposit Boxes.
The Maryland Trust Company, Baltimore, Md.—Safe Deposit Boxes.
The Merchants and Newark Trust Co., Newark, N. J.—Safe Deposit Boxes.

"The Committee is pleased to again report that interest has been paid on all securities owned by the ASSOCIATION with one exception. Interest on a $1000 Bond, due May 31, 1933, of the City of Detroit, in the Life Membership Fund, and amounting to $40 was not paid; interest due on this Bond on December 1933, was paid and no doubt the interest in default will be paid later.

"As reported in Item No. 24, Council Letter No. 4, November 27, 1933, certain series of the Fourth Liberty Loan Bond, 1933–1938, were called for payment at par on April 15, 1934. In accordance with motion passed by the Council, the treasurer and secretary sold these bonds at 101 and purchased uncalled coupon bonds of the same issue to replace at $101^{21}/_{32}$. Coupon bonds were purchased because they brought a slightly better price and because of the difficulty of transferring registered bonds as further issues are called. Two $100 coupon bonds in the Headquarters Building Fund and one $100 coupon bond in the Procter Monument Fund, all in the same series, were sold and not replaced. $5000 of the amount secured for bonds in the Life Membership Fund was transferred to the Current Fund.

"The treasurer is keeping a separate account of all investments for the Headquarters Building property and equipment. The amount to April 30, 1934, was $487,682.94.

"The chairman of the Council, the secretary and treasurer were appointed a Committee to consider the most appropriate means of using the Franklin M. Apple Fund which amounts to $1607.05 and which is now held in the Current Fund. The Committee recommends that this amount be applied to the purchase of the furniture for the Reading Room of the American Institute of Pharmacy and that an appropriate plate be displayed in the Room.

"A further payment of 20% was made on the balances in the Baltimore Trust Company and it is expected that further payments will be made later. In the mean time the unpaid balances draw interest at 2%.

"The Committee is pleased to report that the property and funds of the ASSOCIATION are in a very satisfactory status considering the conditions and the Committee has no changes to recommend at this time."

On motion of Caspari—Christensen, the report was received and the recommendations approved.

56. Committee on Publications. Chairman DuMez submitted the following report:

"Your Committee on Publications respectfully submits the following report on its activities during the past year, and on the status of the ASSOCIATION's publications.

"*Journal:* The total expenditures for the publication of the JOURNAL for 1933, including the Editor's salary, were $18,212.94 ($13,212.94 plus $5000). The total expenditures for 1932 were $19,955.51 ($14,955.51 plus $5000), which represents a decrease of $1742.57.

"The receipts of the JOURNAL for advertising, subscriptions, sale of single copies, reprints, etc., for 1933 were $7900. The subscription credit received from non-headquarters building members less 20% for overhead amounted to $4334.26, making a total of $12,234.26. The total receipts for 1932 were $13,580.34. The receipts, therefore, decreased by $1346.08.

"The total expenditures of $18,212.94, less the receipts of $12,234.26, show the net cost of the JOURNAL for 1933 to be $5978.68. The net cost for 1932 was $6315.17. The net cost of the JOURNAL, therefore, decreased by $396.49 from that of the preceding year.

"The JOURNAL has not escaped being affected by the depression. However, the showing made in the past year and nine months indicates that conditions are improving. In 1932 the net cost of the JOURNAL was $1532.61 above that of the preceding year. In 1933, on the other hand, the net cost was $436.49 below that of 1932. The receipts up to May 1st of this year are $3782.91, whereas they were only $2902.59 at the same time last year. This represents a gain of $880.32. If the expenses can be kept down, a further reduction in the net cost of the JOURNAL may be looked for this year.

"Following established custom, the publishing companies were requested early last fall to submit estimates on the cost of publishing the JOURNAL for the coming year. The Mack

Printing Company, of Easton, Pa., submitted the lowest estimate, and was again awarded the contract.

"Further details relative to the management and publication of the JOURNAL will be reported by Editor Eberle.

"*Year Book:* Volume 20 of the YEAR BOOK of the ASSOCIATION which contains the report on the progress of pharmacy for the years 1931–32, should be in the hands of the members by this time. Three thousand (3000) copies were ordered to be printed.

"The printer was rather slow on the job. The manuscript for the 1931 volume was placed in his hands last summer, and the manuscript for the 1932 report was furnished him in December.

"Certain journals were again abstracted for the Committee of Revision of the United States Pharmacopœia, and these abstracts were included in the reports on the progress of pharmacy. To cover the cost of this work, the Board of Trustees of the Pharmacopœial Convention again appropriated the sum of $1000.

"The printing, binding, etc., was done by the Lord Baltimore Press, of Baltimore, Maryland.

"Work was begun some time ago on the volume for 1933. Much of the abstracting has already been done, and it is hoped that the book will be ready for distribution by the end of September.

"*National Formulary V:* Up to March 1, 1934, a total of 49,126 copies of the National Formulary V were printed. Of these 48,626 were bound in buckram and 500 were bound in leather. Of the copies bound in buckram 48,211 have been sold and 80 copies have been distributed gratis. Of the copies bound in leather 100 have been sold and 12 have been distributed gratis. This leaves on hand with the J. B. Lippincott Company a stock of 335 copies bound in buckram and 388 copies bound in leather. The Mack Printing Company has approximately 450 copies of the N. F. V, which are now being bound in buckram for delivery to the J. B. Lippincott Company.

"Permission was granted to Dr. Macfarlan to use portions of the text of the National Formulary V, in the preparation of a formulary for the Philadelphia County Medical Society, and to Dr. R. P. Walton of the School of Medicine of Tulane University for the reproduction of three formulas in a syllabus of prescription writing intended for the use of students.

"*Pharmaceutical Recipe Book:* Up to March 1,1934, 5000 copies of the Recipe Book had been printed and bound in buckram. Of this number 4803 copies have been sold and 95 complimentary copies have been distributed, leaving a stock on hand of 103 copies. During the period June 1, 1933 to March 1, 1934, 317 copies were sold, whereas only 278 copies were sold in the preceding 12 months.

"500 copies of the Recipe Book, Series B, were ordered recently to replenish the rapidly diminishing stock on hand.

"In conclusion, your Committee extends thanks to those who have coöperated in promoting the interest of the ASSOCIATION'S publications, and expresses its appreciation of the fine cooperative spirit shown by the many pharmaceutical journals of the country in giving publicity to the ASSOCIATION'S activities."

The report was received on motion of Christensen—Adams.

57. Use of the Text of the N. F. V. As recommended by the Committee on Publications permission to use without charge portions of the Text of the N. F. V for partial reproduction was granted to the Philadelphia County Medical Society in its proposed formulary, and to the School of Medicine of Tulane University in a syllabus of prescription writing for medical students provided the usual acknowledgment be printed on the title page of these publications, on motion of Adams—Christensen.

58. Editor of the Year Book. The following report was submitted by Editor DuMez:

"Volume 21 of the YEAR BOOK, covering the calendar years 1931 and 1932, has just been distributed. The fact that the volume did not make its appearance earlier is disappointing. The manuscript for the first half was given to the printer last summer, and that for the second half was furnished him in December.

"Work is progressing satisfactorily on the preparation of the volume for 1933. All assignments have been made and a considerable amount of abstracting has already been done. A spe-

cial effort is being made to push the work to completion before the end of the year so that the abstracts can be carried in the JOURNAL beginning with 1935. It will hardly be possible to carry more than the abstracts for one year in the JOURNAL, so that it will be necessary to prepare another volume of the YEAR BOOK covering the literature for 1934.

"If the work of the 1933 volume is completed by September, let us say, there will be a period of three months remaining before going on a monthly schedule. This will be sufficient time to get a good start on the abstracting for 1934 and it seems that it should be possible to complete it by the end of 1935 in spite of the fact that the work will have to be done along with the abstracting of the current literature for monthly publication.

"This year was not a good time to begin the preparation of abstracts for monthly publications in the JOURNAL, as it was expected that the offices of the ASSOCIATION would be moved from Baltimore to the new Headquarters Building in Washington, and that it would take some time to get settled in the new quarters. The offices have been moved as expected, and the Editor of the JOURNAL is getting his affairs in such shape that there is no good reason why we should not begin the preparation of abstracts on a monthly schedule by the first of next year. This will give ample time to organize a staff of abstractors and to arrange for supplying them with the publications to be abstracted each month."

On motion of Swain—Eberle, the report was received.

59. Editor of the Journal. Editor Eberle read the following report:

"The report of the Editor herewith deals with the business of 1933 and as report of previous years, is compared with the prior year, 1932.

"The expenses of the JOURNAL for 1932 were $14,955.51; the receipts were $8861.37. Deducting the receipts, not including membership subscriptions from expenses shows a net cost of $6094.14. Add the Editor's salary and we have a cost of $11,094.14. The credit on membership subscriptions, not Headquarters members, less 20% for overhead, which for 1932 is $4718.97 from the gross cost, $11,094.14, leaves $6375.17 net cost, including the Editor's salary; an average of 4990 copies were printed monthly, making a cost of about $1.27 per volume.

"The total expenditures for the publication of the JOURNAL, for 1933, including the Editor's salary, were $18,212.94 ($13,212.94 + $5000). The total expenditures for 1932 were $19,955.51 ($14,955.51 + $5000), which represents a decrease of $1742.57.

"The receipts of the JOURNAL for advertising, subscriptions, sales of single copies, reprints etc., for 1933 were $7900. The subscription credit received for non-Headquarters building members, less 20% for overhead, amounted to $4334.26, making a total of $12,234.26. The total receipts for 1932 were $13,580.34. The receipts have, therefore, decreased by $1346.08.

"The total expenditures of $18,212.94 less the receipts of $12,234.26 show the net cost of the JOURNAL for the year to be $5978.68. The net cost for 1932 was $6375.17. The net cost of the JOURNAL has, therefore, decreased by $396.49 over the preceding year.

"The number of pages in 1932 was 1362; in 1933, 1310. The publication costs in 1932, $10,261.45; in 1933, $9107.44. Mailing costs of the JOURNAL in 1932, $655.21; in 1933, $599.51; mailing back numbers of the JOURNAL for 1932, $13.93; in 1933, $26.50. Engravings and photographs, other than included in Mack Printing Company account in 1932, $479.97; in 1933, $387.06. Binding JOURNALS in 1932, $43.50; in 1933, $25.75; stationery and office supplies in 1932, $86.73; in 1933, $69.20; clerical, in 1932, $1419; in 1933, $1242. Commissions on advertising in 1932, $554.08; in 1933, $488.22. Small miscellaneous items make up the remainder of the total expenses.

"Detailed comparative receipts 1932 and 1933. The receipts for 1932, $8861.37; for 1933, $7900. Advertising in 1932 brought $5931.47; in 1933, $5241.92. Subscriptions in 1932 amounted to $939.91; in 1933, $903.53; it should be understood that we make every effort possible to bring subscriptions to memberships. Single copies in 1932, $51.30; in 1933, $28.51. Reprints, in 1932, brought $1098.14; in 1933, $1038.79. Miscellaneous items amounted to $840.55 in 1932; in 1933, $687.25. In 1932 the National Association of Boards of Pharmacy contributed $80; none in 1933. The American Association of Colleges of Pharmacy contributed $300 in 1932 and the same amount in 1933. In 1932, J. U. Lloyd contributed $50 toward the expense of printing his fourth paper on Physics in Pharmacy and we have received $50 from him for the publication of the paper presented at Toronto. The Conference of Pharmaceutical Association

Secretaries contributed $25 in 1932 toward the expenses of printing their minutes in the JOURNAL and a like contribution was made in 1933. The Conference of Law Enforcement Officials contributed $75. A number of reproductions of pictures and books have been made without cost to the JOURNAL and ASSOCIATION, and the sum derived from the sales of these was contributed to the JOURNAL—'The Laboratory,' 'Dr. Power in His Laboratory,' 'Ground Breaking at Headquarters,' 'Proof Sheets of United States Pharmacopœia I,' 'New Nomenclature,' which, with contributions toward the expenses of the JOURNAL amounted, in 1932, to $459.05; in 1933, $222.50.

"In recent years the papers presented to the Sections have increased in number and some in the pages of the reports, as a result we have about 25 papers unpublished, several of these lengthy, and a large list has been contributed for this meeting. If it had not been for the earlier meeting of the ASSOCIATION, most of these papers would have been published.

"As stated in the last report, among the papers in recent years have been those presented in partial fulfilment of work for degrees. As then stated, it has occurred to the Editor that part of the expenses for papers of that type should be met by the authors. There are two sides to the question, of course. Another expense that should, perhaps, in part be met by authors is when a large number of cuts are used. Tabular matter should be summarized to an extent. The JOURNAL has carried the expense of having reprints made of reports and minutes of meetings in connection with the annual convention for distribution at the sessions of the ASSOCIATION and for pharmaceutical publications. Also, abstracts have been mimeographed for like distribution; more than one hundred have been prepared.

"A work of interest and value has been published, 'The Professional Pharmacy—an Analysis of Prescription Department Activities' by Frank A. Delgrado and Arthur Kimball. It is part of the National Drug Store Survey and published under and by authority of the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce. About 5000 copies of reprints have been sold and the amount received has paid for making them, but not for publication costs Fine publicity has been given by most of the pharmaceutical publications.

"Papers relating to U. S. P. and N. F. revision work have appeared in the JOURNAL and coöperation has been given to research work of the American Drug Manufacturers' Association and the American Pharmaceutical Manufacturers Association.

"The contribution of the American Association of Colleges of Pharmacy is appreciated and thanks are extended to Dean C. B. Jordan, editor of the department, for his coöperation.

"The difference between receipts and expenses up to April 1st of last year and April 1st of this year is only $10, less this year than last. The favorable difference would have been greater, but the cost of the reprints of Professional Pharmacy increased the expenses; this shows up in the larger receipts up to May 1st of this year. The receipts up to May 1st of 1933 were $2902.59 and up to May 1st of this year, $3798.24.

"Itemized receipts and expenses are in the hands of the secretary and these are included in the auditor's report. Scheduled itemized lists of the receipts and expenses for 1933 were included in the January report, 1934, to all members of the Committee on Publications.

"The Editor is thankful for the fine coöperation given him."

The report was received, on motion of Adams—Kelly.

60. Committee on Standard Program. In a verbal report, Chairman Hilton reviewed the work of the Committee in connection with this meeting and explained why it was not possible to submit the program to the Council earlier, as is customary, as well as the changes made necessary by the dedication exercises. The report was received.

61. Committee on Recipe Book. Chairman Lascoff read this report:

Chairman J. Leon Lascoff submitted the following report. Secretary E. F. Kelly reported that up to June 1st of last year, 4487 books were sold and 420 copies were in stock. This year he reports that up to March 1, 1934, 4897 books were sold and 103 remain in stock; also an additional 500 copies have been ordered. All 5000 copies have been sold from Series A and 9 copies from the 500 ordered.

On March 12, 1934, your chairman received the following letter from Mr. J. H. Gardner of Lippincott and Company, the distributors:

"Each day we have been receiving a number of inquiries concerning the PHARMACEUTICAL RECIPE BOOK, and some of the prospective customers say that they saw an article in one of the Pharmaceutical Journals.

"The writer would like to have a copy of this recommendation if you can arrange to send it to him.

"This is excellent publicity and already has resulted in five or six definite sales."

During 1932–1933, definite work was begun on the revision of the Recipe Book. Seven bulletins were mailed to the members of the Committee. In these bulletins were included 102 new formulas and a table of doses.

During 1933–1934, ten new bulletins were issued which brought up the complete total to 173 formulas and 72 additional formulas are now under consideration.

The First Edition of the Recipe Book contained a total of 1621 formulas consisting of: 777 Pharmaceutical Formulas, 373 Hospital Formulas, 34 Dental Formulas, 66 Diagnostic Reagents and Clinical Tests, 28 Veterinary Formulas, 45 Photographic Formulas, 184 Cosmetic Formulas, 45 Flavoring Extracts, 69 Technical and Miscellaneous Formulas.

The proposed revision up-to-date includes 245 additional formulas consisting of: 121 Pharmaceutical Formulas, 15 Hospital Formulas, 59 Dental Formulas and Cosmetic Formulas, 16 Diagnostic Formulas, and 34 Technical Formulas.

Dr. H. A. Langenhan asks the following questions which are very helpful to members of the Committee in determining which formulas are suitable for adoption: (1) Is any formula submitted to be included? (2) Have these formulas been tried out? (3) Is there a demand for them? (4) What points shall be considered in voting on them?

In answer to the first question, it is necessary that at least a $^2/_3$ majority of the votes be in favor of the formula, before it is adopted.

In answer to the second question, I may state that before any of these formulas are included in the Recipe Book Second Edition, each will be tried out, as were those formulas in the First Edition.

Answering the third question, no formulas have been presented unless there have been requests for same.

As to what points shall be considered in voting, there are many to be observed. As stated in the Preface of the First Edition, "The purpose of the Recipe Book is to supply definite formulas for those preparations, outside of the official books, that are in fairly common demand in the retail pharmacy and the hospital pharmacy."

Dr. Langenhan also asks why the Recipe Book should be a "*receptacle* for formulas not used" in the National Formulary (referring to the deletions). That question is answered by this fact. After the new edition of the N. F. is out for a few years, comparatively few pharmacists will be in possession of the N. F. V. Quite a number do not have N. F. IV and very few have N. F. III.

On many occasions, I have been asked for formulas from both of these books. In further connection with the deletions from the Formulary, Dr. Scoville writes that he is in favor of including all of the articles from Part I of the N. F. but none of those from Part II. Your Chairman agrees with Dr. Scoville, and also suggests deleting the fluidextracts. The galenicals of Part I are much more useful than the crude drugs of Part II.

With the reports mailed to members and included in this report a sheet is included on which members can designate the deletions and inclusions they desire. A list of deletions follows; only those not printed in September JOURNAL, page 904, are given, which see.

N. F. DELETIONS.

Elix. Anis.
Elixir Glycrrh. Aq.
Elix. Tong. et Salicyl.
Emuls. Petrolat.
Fldglycer. Casc. Sagr. Arom.
Formal. Cresol.
Lavat. Ori
Liq. Hypophos. Co.
Lot. Alba Vet.
Phenol Iodat.
Pil. Aloe et Asafoet.
Pil. Aloin Co.
Pil. Digit. Scill. et Hydrarg.
Pil. Opii et Plumb.
Pil. Rhei
Pulv. Pancreat. Co.
Sol. Mastic. Chlorof. Co.
Sol. Resin. Chlorof.
Sp. Sinap.
Syr. Calc. et Sod. Hypophos.
Acid. Bromaur.
Agaric.
Allium
Alth. Fol.
Ammon. Phos.
Angel. Fruct.
Angel. Rad.
Antim. Oxid.
Asclep.
Baptis.
Boldo
Brayer.
Bromum
Calc. Lactophosp.
Canel.

Cass. Fist.	Fucus	Piment.
Centaur.	Galangal.	Plumb. Iod.
Cerev. Ferm. Compr.	Galega.	Plumb. Oxid. Rub.
Chirat.	Geran.	Prunum
Cocillan.	Hæmatox.	Querc.
Coff. Tos.	Ignat.	Quinid.
Conium	Inula.	Rubus
Coptis	Juglans	Rumex
Cornus	Kav.	Sassaf. Med.
Coumar.	Lac Vaccinum	Scopar.
Crocus	Magnes. Chlorid	Senecio.
Cypriped.	Malv. Fol.	Solan.
Dext. Alb.	Manac.	Suč. Pomor.
Droser.	Mastic.	Tamarind.
Dulcam.	Melilot.	Thuja
Eucalypt. Gum.	Myric.	Tonga
Farfar.	Orthocresol.	Veratrin.
Ferr. Album.	Ovi Album.	Verbasc. Fol.
Ferr. Lact.	Pareir.	Zedoaria
Ficus	Passifl.	

On April 12, 1934, a letter was mailed to the members of the Committee informing them that the meeting of the members of the Recipe Book Committee would be held on May 9th at 12:30 P.M. Enclosed also were bulletins Nos. 6, 10, 11, 12, 14, 15, 16 and 17. The meeting had been called for the purpose of carefully considering the formulas already presented and to discuss their merits.

A complete typewritten set of formulas, together with the names of the members voting has been compiled. The result of their votes and comments have been assembled in a leather-backed note-book of 200 pages.

In the report of 1931–1932 at Toronto, your chairman called attention to certain criticisms of the First Edition of the Recipe Book. All will be taken into consideration and corrections will be made.

Your chairman wishes to take this opportunity to express his personal thanks to the members of the Committee who have been so helpful with their criticisms and suggestions. He also wishes to extend his appreciation to all the members of the AMERICAN PHARMACEUTICAL ASSOCIATION who have shown interest and who have coöperated in the work of revising the present edition of the Recipe Book. Your chairman wishes to thank Secretary Kelly and Editor Eberle for their valued assistance.

In conclusion, I would like to state that with the number of formulas in the present Recipe Book; with their corrections; with the addition of approximately 250 new formulas; with the new galenicals from the N. F. V. which were deleted, the total number of formulas will be brought to approximately 2000.

The A. PH. A. Recipe Book, Second Edition, together with the foregoing material, will be the only Pharmaceutical Recipe Book of its kind. It will prove of great value not only to the physician, the dentist, the pharmacist, the hospital pharmacy, but to the clinical laboratory, the cosmetician and to pharmaceutical manufacturers as well.

On motion Adams—Eberle the report was received with the thanks of the Council for the splendid work of the chairman and his associates.

62. Code for the Retail Drug Industry. The president and secretary made a full report on the work of the ASSOCIATION in this connection, the latter reporting as a member of the National Retail Drug Code Authority. The subject was discussed at length by others present. No action was required.

63. Nomination of Honorary-President, Secretary and Treasurer. Mr. J. K. Lilly was nominated to the House of Delegates as Honorary President for 1934–1935, on motion of Swain—Caspari; E. F. Kelly, as Secretary, on motion of Swain—Adams and C. W. Holton as Treasurer, on motion of Eberle—Kelly.

64. Annual Report of the Council to the House of Delegates. Chairman Hilton and the secretary were authorized to prepare and submit the report, on motion of Eberle—Adams.

65. Election of Members. On motion of Swain—Adams, the following applicants, who were properly endorsed, were elected to membership:

No. 183, Morris Aaron Freedman, 52 Aborn St., Peabody, Mass.; No. 184, Reginald D. Dymond, 82 Dalhousie St., Brantford, Canada; No. 185, Robert A. Timmel, 14929 Tenth Ave., Whitestone, L. I., N. Y.; No. 186, William McKaba, 134 State St., Brooklyn, N. Y.; No. 187, Seymour Stern, 991 President St., Brooklyn, N. Y.; No. 188, Ada Johanna Bizzaeri, 324 E. 116th St., Manhattan, N. Y.; No. 189, Herman J. Steinberg, 2102 Bronx Pk., N. Y.; No. 190, Andor Hacker, 2474 Valentine Ave., Bronx, N. Y.; 191, Isidore Koenig, 2963 W. 23rd St., Brooklyn, N. Y.; No. 192, S. Alex Becker, 1699 Carroll St., Brooklyn, N. Y.; No. 193, Nicholas V. Arancio, 423 E. 80th St., New York, N. Y.; No. 194, Herbert Bernstein, 1305—38th St., Brooklyn, N. Y.; No. 195, Jack Zivin, 1321 Foster Ave., Brooklyn, N. Y.; No. 196, Patrick Joseph Diskin, 2544 E. 19th St., Brooklyn, N. Y.; No. 197, Nicholas P. Caridi, 815 Woodward Ave., Ridgewood, N. Y.; No. 198, Arthur J. DeIanni, 354 E. 119th St., New York, N. Y.; No. 199, Harry Wishinsky, 287 Henry St., New York, N. Y.; No. 200, William Matz, 1245 Harrod Ave., New York, N. Y.; No. 201, Armando Font, Jr., 46 Fort Washington Ave., New York, N. Y.; No. 202, Harry Figatner, 173 Hooper Street, Brooklyn, N. Y.; No. 203, Bernard Meyerson, 214 Central Ave., Brooklyn, N. Y.; No. 204, Libera Vasil Palmeri, 313—17th St., Brooklyn, N. Y.; No. 205, Max Vogel, 82 E. Park St., Long Beach, N. Y.; No. 206, Joseph Brown Rogers, New Albany, Mississippi; No. 207, Edward Sacksman, 632 Elizabeth Ave., Elizabeth, N. J., No. 208, Eugene M. Caskey, Box 696, Jacksonville, Texas; No. 209, James Mitchell Chaney, 440 Washington St., New York, N. Y.; No. 210, John C. Hood, Kinshan, N. C.; No. 211, David Maistelman, 644 E. 170 St., Bronx, N. Y.; No. 212, Verne Willard Cowell, 2911 M St., Lincoln, Nebr.; No. 213, Otto Andreas Bjornstad, 396 West 4th St., Spencer, Iowa; No. 214, Thomas Meehan, 2111–2115 E. Susquehanna Ave., Philadelphia, Pa.; No. 215, Albert C. Fritz, 4101 E. Michigan St., Indianapolis, Ind.; No. 216, Paul Buchanan Perrigo, Allegan, Mich.; No. 217, C. W. Collins, 19th St. and St. Marys Ave., Parkersburg, W. Va.; No. 218, W. R. Crane, Fairmont, W. Va.; No. 219, Jess A. Reese, 2412 Grove Ave., Richmond, Va.; No. 220, Michael J. Strassner, 24 Barbour St., Haledon, N. J.; No. 221, Herbert Richard Hutchinson, 65 Pillsbury, Concord, N. H.; No. 222, George R. Arnold, Box 471, Thermopolis, Wyoming; No. 223, Isidor Schnitter, 425 Washington St., Hoboken, N. J.; No. 224, John F. Cosgrove, 315 Ridge St., Newark, N. J.; No. 225, Samuel R. Kleegon, 11363 N. Martindale, Detroit, Mich.; No. 226, Byron E. Emery, 370 Parnassus Ave., San Francisco, Calif.; No. 227, Donald R. Squier, 14324 Jefferson St. E., Detroit, Mich.; No. 228, Theo. A. Arneson, Montevideo, Minn.; No. 229, Buell Parker Bogan, 1710 Douglas St., Sioux City, Iowa; No. 230, Martin F. Haberle, 250 Langdon St., Madison, Wis.; No. 231, Andrew Ruzeck, 250 Langdon St., Madison, Wis.; No. 232, Elizabeth Bohlson, 228 High St., Oshkosh, Wis.; No. 233, Stewart Irwin Lubcke, Middleton, Wis.; No. 234, Lyman D. Fonda, 600 Lafayette Ave., Brooklyn, N. Y.; No. 235, Carl Hermann, 21 W. 6th Ave., Helena, Mont.; No. 236, Bernard Aaron, 804 First Ave., Elizabeth, N. J.; No. 237, Robb Vernon Rice, 510 McLeod Ave., Missoula, Mont.; No. 238, Arthur Goldstein, 720 W. Main St. North, Gainesville, Florida; No. 239, Robert L. Whie, 25–27 Hernando St., Gainesville, Florida; No. 240, John F. Mayer, 1600 Shattuck Ave., Berkeley, Calif.; No. 241, Victor C. Piaskowski, 7542 Michigan Ave., Detroit, Mich.; No. 242, Conda H. Diehl, 102 W. Main St., Mechanicsburg, Pa.; No. 243, N. Clark Clement, 61 Brook St., Wellesley, Mass.; No. 244, Clemente A. Tarallo, 93 Greenside Ave., White Plains, N. Y.; No. 245, Anthony John Zolenas, Jr., 1619 Spence St., Baltimore, Md.; No. 246, Seymour B. Dewey, 1148 Williams Rd., Cleveland, Ohio; No. 247, Milton E. Cohen, 100 Crooks Ave., Clifton, N. J.; No. 248, Camille Masucci, 34 Ward, Paterson, N. J.; No. 249, Virginia Mae Powelson, 171 Franklin Ave., Hasbrouck Hts., N. J.; No. 250, Loreta Artese Paganelli, 288 Highland Ave., Orange, N. J.; No. 251, Carson P. Frailey, 506–507 Albee Bldg., Washington, D. C.; No. 252, Dallas Ewing Billman, 15—4th St., Paterson, N. J.; No. 253, Louis M. Roeg, 428 Summit Ave., Westfield, N. J.

66. Election of Honorary Member. Mr. Charles Moore, chairman of the Commission of Fine Arts, was elected an Honorary Member, on motion of Swain—Caspari.

67. Honorary and Corresponding Members. The secretary read a letter from Dr. Edward Kremers containing several suggestions with respect to these classes of membership. After a

general discussion, the Chairman and Secretary of the Council and the Editor of the JOURNAL were named as a special committee to make a study of the question and to report to the Council at the next annual meeting, on motion of Adams—Swain.

The Third Meeting of the Council for 1933–1934 was held in the Shoreham Hotel on Thursday forenoon, May 10th, with the following members present: Hilton, Beal, Dunning, LaWall, Adams, Fischelis, DuMez, Eberle and Kelly. Sir Henry S. Wellcome attended by invitation.

The minutes of the Second Meeting were approved as read.

68. Committee on Student Branches. Chairman W. Bruce Philip presented a verbal report. On motion of Beal—Eberle the report was received and the recommendation approved that there be named a faculty advisor for each student branch or an advisor approved by the faculty.

69. Food and Drug Legislation. Dr. Beal discussed the probable effect of S. 2800 and other bills on the status of the U. S. P. and N. F. A general discussion followed but no action was taken.

70. Proposed Council on Pharmaceutical Practice. By invitation Dr. E. Fullerton Cook presented a proposed plan for establishing such a Council under the auspices of the A. PH. A. After a general consideration of the subject, the chairman was authorized on motion of Beal—Eberle to appoint a special committee for the Council, to consider the proposal and to later report to the Council.

71. Committee on Research. The secretary read the following report as submitted by Chairman Arny:

"Your committee conducted its business during the year by means of three Bulletins and held a meeting at Hotel Shoreham on May 9th with 8 of its members in attendance.

"At this meeting, the following resolutions were passed:

"*Resolved*, that the committee recommend to the Council and to the ASSOCIATION that the Research Grant for 1934–1935 ($1000) be awarded to W. J. Husa and his associates at the University of Florida for a continuance of their research on extraction,

"*Resolved*, that the committee recommend to the Publication Committee, that the papers on extraction presented by Dr. Husa at this 1934 meeting, embodying the results of work performed by him in 1932–1934, be published in the A. PH. A. JOURNAL as promptly as possible. The committee further suggests that if feasible a sum not to exceed $150 be drawn from the A. PH. A. Research Fund to pay the cost of publication of these extraction papers."

After discussion, the report was received and the recommendations approved, on motion of Beal—Fischelis.

72. Commission on Proprietary Medicines. Chairman Beal verbally reported progress and suggested that the Commission might give study to the proposal to limit the preparation of medicines to registered pharmacists. The report was received and the suggestion approved on motion of Dunning—Adams.

The Fourth Meeting of the Council of 1933–1934 was held in the Shoreham Hotel on Friday evening, May 11, following the final General Session. Chairman Hilton and Messrs. Beal, Dunning, Adams, Fischelis, Krantz, Holton, Eberle, DuMez and Kelly were present.

The minutes of the Third Meeting were read and approved.

73. Committee on National Formulary. The secretary submitted the following report for Chairman Gathercoal:

"The National Formulary Revision Committee elected in 1929 at the Rapid City meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION is now in the fifth year of its activities.

"The organization of the Committee by the election of its chairman and secretary was completed late in 1929, and the first page of the National Formulary "Bulletin" was issued January 8, 1930. The first report of the chairman of the National Formulary Committee was presented to the Council early in May 1930. This first report dealt largely with certain suggestions regarding Scope and especially regarding a further development of interest in the National Formulary among physicians and among pharmacists. Three specific features of this first report might be mentioned at this time, namely;

"(*a*) An active undertaking to determine the 'Extent of Use' of N. F. V preparations in hospital pharmacies, large prescription pharmacies and ordinary drug stores, and as manufactured by the leading pharmaceutical manufacturing houses.

"(*b*) A definite request for research in connection with National Formulary preparations.

"(*c*) A leading intimation that the actual money expenditure in connection with the Revision should be markedly increased over what had been spent in previous Revisions; in fact, the sum of $40,000 was mentioned in this connection.

"That the Council may have a fair idea of what has been accomplished along these three lines, permit me to present the following statement relative thereto:

"(*a*) In reference to determining the 'Extent of Use' of drugs and medicines as a guide to the Committee regarding admissions to N. F. VI, three great surveys have been executed, one on the use in pharmacies of N. F. V preparations, one on the use in pharmacies of unofficial preparations and one on prescription ingredients. A fourth survey on the number of prescriptions annually compounded in the United States was initiated and successfully carried through in connection with other pharmaceutical organizations. The total cost of these several surveys has never been completely separated from other N. F. expenses or accurately computed, but certainly it is several thousands of dollars, possibly, counting the $500 donation from the U. S. P. Board of Trustees and the great amount of material contributed by the National Drug Store Survey (St. Louis), as much as $10,000.

"(*b*) Regarding National Formulary research, while several small appropriations have been made from the A. PH. A. Research Fund, and while a considerable amount for research has gone through the N. F. General Expense Fund, yet your chairman has been definitely disappointed in the small amount of contributions that have been made toward research on important N. F. problems. Most of the really important research contributions have come from private sources without any financial contributions from the A. PH. A. and, in fact, hardly an acknowledgment by the A. PH. A. of this important work. It would be but fair for me to say that the cost of research contributions made by the pharmaceutical manufacturing firms to the ampul monographs and to the tablet monographs of N. F. VI exceed by five times over the total monies appropriated by the AMERICAN PHARMACEUTICAL ASSOCIATION for research on N. F. VI monographs during the past four years. However, the total volume of research on N. F. VI monographs has been surprisingly large and will be reflected in the revised work. In this connection mention should be made of the very splendid contributions by Dr. H. W. Youngken, other Pharmacognosists, and certain Pharmacologists to the several new monographs on glandular products that will appear in N. F. VI.

"(*c*) The cost of the present Revision of the National Formulary as compared with the cost of previous Revisions has, no doubt, caused considerable astonishment and even alarm to officers of the AMERICAN PHARMACEUTICAL ASSOCIATION. However, this cost is still far below the estimate of $40,000 that was given you five years ago, and the total cost of the Revision probably will not be more than 25 per cent of the U. S. P. Revision costs.

"During the first year of revision work, a meeting of the Committee was held near Cleveland, Ohio, at which Rules of Business Procedure and General Principles of Revision were extensively discussed and adopted. Tentative admissions of about 400 items were made, and the complete organization of the Revision work was set up.

"During the year 1931, marked activity prevailed in the nine Sub-committees, and a preliminary review of practically all of the admitted monographs was made. A second meeting of the Committee was held at Pocono Manor Inn in June 1931, at which splendid data on the extent of use of N. F. V preparations and of unofficial preparations were presented. Final action was taken on about 500 admissions to N. F. VI. Important work was done in the Sub-committee meetings, and the number of pages of the N. F. Bulletin increased to 350, and of the Sub-committee Letters to about 400 pages by the end of 1931.

"During 1932 the Sub-committees reported extensively on their monograph work, and the number of pages of the Bulletin increased to about 650. No Committee meeting was held during this year, but a vast amount of work was given to the completion of the several surveys on the extent of use of medicines in the United States.

"During 1933 a very large number of the monographs appeared in the Bulletin, and the number of pages of the Bulletin increased to about 1350. During this year also the 'Prescription Ingredient Survey' was published in book form. By the end of the year at least 400 monographs out of about 700 were definitely reported out from Sub-committees and were ready for the Editorial Committee.

"Since the first of 1934 many more monographs have been declared completed by the Sub-committees, and the editorial work has been progressing rapidly. At the present date all of the 110 monographs assigned to the Sub-committee on Pharmacognosy have been completed, published in the Bulletin and have been practically completed from the editorial standpoint. All of the 88 monographs assigned to the Sub-committee on Chemistry have been completed and published in the Bulletin and have been largely finished from the editorial standpoint. All of the 144 monographs assigned to the Sub-committee on Extractive Preparations have been published in the Bulletin, have been reviewed in 'First Proof' by Chairman Scoville and are practically ready for the printer. There are possibly three or four of these monographs not yet finished. This Sub-committee has also prepared the proximate assays, and these assay processes have been published and criticized and are ready for inclusion in the monographs. All of the 27 ampul monographs have been published and republished in the Bulletin. They have been very extensively criticized and many comments have been received recently as to the satisfactory appearance of these monographs. Sub-committee No. 3 on the Solution Preparations (elixirs, solutions, syrups, waters) has had perhaps the most difficult assignments of any in connection with the N. F. Revision. There are still a considerable number of unfinished problems in this Sub-committee, though a vast amount of work has been done by the Sub-committee. Most of their monographs have been published in the N. F. Bulletin. The other Sub-committees have largely completed their assignments, except the special Sub-committee on Tablets. This Sub-committee, in charge of Professor Nichols, has been assigned an enormous amount of work, and unfortunately was organized much later than the other Sub-committees. However, we feel confident that during the coming summer this Sub-committee will get most of its monographs into the Bulletin and in a very satisfactory form.

"In concluding this report, the Chairman of the N. F. Revision Committee will advance no particular suggestions or proposals. We have no new projects in mind, and our only aim now is to satisfactorily complete the work and get it into the printer's hand as rapidly as possible. We look forward to the publication of the Revised Edition at as early a date as possible and really greatly desire to see the new U. S. P. and the new N. F. made official July 1, 1935. Perhaps, however, this is an impossibility.

"No budget or proposal of expenditures will be presented at this time. It is expected that the general office expense and the Bulletin publication expense will be about the same during the next year as in the past year."

On motion of Kelly—Eberle the report was received, with thanks to Chairman Gathercoal to the Committee on N. F. and to all who have coöperated with them in preparing the text of the N. F. VI.

74. Headquarters Building. Chairman Dunning referred to the splendid coöperation that Mr. J. O. Shumate, of the George A. Fuller Company, has given in connection with the erection of the headquarters building and which should be suitably acknowledged. On motion Dunning—Krantz, it was ordered that an appropriate certificate be prepared and delivered to Mr. Shumate, and that later he be given an honorarium of $100 from the Headquarters Building Fund.

75. Election of Members. The following applicants were elected to membership on motion of DuMez—Dunning:

No. 254, Jose Menendez, Girogetti St., No. 1, Rio Piedras, Puerto Rico; No. 255, Burton K. Murdock, 10 Main St., Kennebunk, Maine; No. 256, Joseph P. Maile, 522 Ocean Ave., Brooklyn, N. Y.; No. 257, Purcell Smith, Country Club Station, Little Rock, Ark.; No. 258, R. H. Wagner, 3300 Garrison Blvd., Baltimore, Md.; No. 259, M. B. Wagner, 400 W. Baltimore St., Baltimore, Md.; No. 260, J. Jephson, 15519 Waterloo Rd., Cleveland, Ohio; No. 261, Joseph J. Opatrny, 3789 E. 131st St., Cleveland, Ohio; No. 262, Bliss Clark Wilson, Letcher, S. Dak.

The chairman declared that its work was completed and that the Council for 1934–1935 was adjourned.

E. F. KELLY, *Secretary.*

THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1934–1935.

Office of the Secretary, 2215 Constitution Ave., Washington, D. C.

LETTER NO. 1.

May 11, 1934.

To the Members of the Council:

The reorganization and First Meeting of the Council 1934–1935 was held in the Shoreham Hotel, Washington, D. C., on Friday, May 4, 1934, beginning at 11:15 P.M.

1. The roll was called and the following were present: Hilton, Beal, Dunning, Philip, Adams, Fischelis, Geo. D. Beal, Kelly, Eberle and DuMez.

2. Election of Chairman. S. L. Hilton was elected Chairman of the Council for 1934–1935 on motion of Dunning, seconded by Geo. D. Beal and carried.

3. Election of Vice-Chairman. J. H. Beal was elected Vice-Chairman of the Council for 1934–1935 on motion of Philip, seconded by Dunning, and carried.

4. Election of Editor of the Journal. E. G. Eberle was elected Editor of the JOURNAL for 1934–1935 on motion of Geo. D. Beal, seconded by Kelly and carried.

5. Election of Editor of the Year Book. A. G. DuMez was elected Editor of the YEAR BOOK for 1934–1935 on motion of Eberle, seconded by Philip and carried.

6. Membership of the Council. The membership and officers of the Council for 1934–1935 are as follows:

ELECTED MEMBERS.

J. H. Beal, Fort Walton, Fla. (Term expires 1935.)
C. E. Caspari, Euclid and Parkview Aves., St. Louis, Mo. (Term expires 1935.)
C. H. LaWall, 214 S. 12th St., Philadelphia, Pa. (Term expires 1935.)
H. V. Arny, 115 W. 68th St., New York, N. Y. (Term expires 1936.)
H. C. Christensen, 130 N. Wells St., Chicago, Ill. (Term expires 1936.)
W. D. Adams, Forney, Texas. (Term expires 1936.)
H. A. B. Dunning, Charles and Chase Sts., Baltimore, Md. (Term expires 1937.)
S. L. Hilton, 1033 Twenty-Second St., N. W., Washington, D. C. (Term expires 1937.)
W. Bruce Philip, Munsey Bldg., Washington, D. C. (Term expires 1937.)

EX-OFFICIO MEMBERS.

R. P. Fischelis, 28 W. State Street, Trenton, N. J.
Geo. D. Beal, Mellon Institute, Oakland Station, Pittsburgh, Pa.
Oscar Rennebohm, 550 W. Washington Ave., Madison, Wis.
E. F. Kelly, 2215 Constitution Ave., Washington, D. C.
C. W. Holton, Box 81, Essex Fells, N. J.
Rowland Jones, Gettysburg, S. Dak.
E. G. Eberle, 2215 Constitution Ave., Washington, D. C.
A. G. DuMez, Lombard and Greene Sts., Baltimore, Md.

OFFICERS OF THE COUNCIL.

S. L. Hilton, *Chairman.*
James H. Beal, *Vice-Chairman.*
E. F. Kelly, *Secretary.*

7. Finance Committee. Chairman Hilton appointed W. Bruce Philip, *Chairman*, C. H. LaWall and C. W. Holton as members of the Committee on Finance, and these appointments were confirmed on motion of Dunning, seconded by Fischelis, and carried.

8. Committee on Property and Funds. The personnel of this Committee, as provided for in the Council By-Laws, is as follows for 1934–1935: R. P. Fischelis, C. W. Holton, S. L. Hilton, W. Bruce Philip and E. F. Kelly.

9. Committee on Publications. Chairman Hilton appointed H. V. Arny, C. H. LaWall and Walter D. Adams as members of the Committee, the other members being E. G. Eberle, E. F. Kelly, A. G. DuMez and C. W. Holton, as provided in the By-Laws. These appointments

were confirmed on motion of Philip, seconded by Dunning. Chairman Hilton appointed A. G. DuMez as *Chairman* of the Committee on Publications.

10. Committee on Standard Program. The chairman appointed S. L. Hilton, T. J. Bradley and E. F. Kelly as members of the Committee on Standard Program.

11. Committee on Year Book. The chairman appointed the following members: Geo. D. Beal, *Chairman*, F. W. Nitardy, H. W. Youngken, E. N. Gathercoal, E. E. Swanson, J. C. Munch and J. C. Krantz, Jr.

12. Executive Committee of the Council. It was moved by Philip that the chairman be authorized in case the occasion should arise to appoint an Executive Committee consisting of seven members. The motion was seconded by Eberle and carried.

13. Committee on Pharmaceutical Research. On motion of Dunning, seconded by Philip and carried, W. J. Husa and Geo. D. Beal were elected members of this Committee to serve until 1939.

14. Commission on Proprietary Medicines. S. C. Henry was elected a member of this Commission to serve until 1939, on motion of Dunning, seconded by Philip and carried.

15. Committee on Recipe Book. After a general discussion, it was moved by Fischelis that the Committee on Recipe Book be continued for one year. The motion was seconded by Eberle and carried.

16. Appointment of Standing and Special Committees and Delegates of the Association. The president was authorized, on motion of Philip, seconded by Eberle and carried, to make such appointments, as are now authorized, to fill vacancies as they may occur, and to make additional appointments as may be necessary or advisable, during the year.

17. Membership in and Work of the Association. There was a lengthy consideration of these subjects with particular relation to the discussions of membership by the House of Delegates and the Conference of Pharmaceutical Association Secretaries. No action was taken other than to authorize the secretary to withdraw from certain activities when and if this course becomes advisable and to confer with a committee representing the Conference of Pharmaceutical Association Secretaries.

18. The Cost of the Headquarters Building, Approach, Equipment and Grounds. Chairman Dunning reviewed the information given in his reports covering the period since the property was purchased. The cost of the building came within the contract price. The widening of Constitution Avenue to eighty feet and of Twenty-Second and Twenty-Third Streets, made it necessary to revise the plans for grading and for the approach and for the planting, and increased the cost of each of these items. These additional costs amount to approximately $35,000 more than the collections to date, and it was necessary to incur them to satisfactorily meet the enlarged plans of the Government for the area adjoining our site. Chairman Dunning recommended that, pending further collections, the ASSOCIATION borrow this amount at 4% on a note which we will endorse and advised the Council that he had made arrangements for the temporary loan with the Maryland Trust Company of Baltimore. After general discussion, it was moved by Dunning that the proper officers of the ASSOCIATION be authorized to complete the arrangements as outlined above, for a loan of $35,000 at 4% interest, with the Maryland Trust Company on a note of the ASSOCIATION endorsed by Chairman Dunning, and to be renewed as necessary until further collections will liquidate the loan. The motion was seconded by Fischelis and carried.

19. Consideration of Various Reports, Resolutions and Recommendations Referred to the Council. The secretary advised that a number of such communications had been referred to the Council, some of them involving appropriations. On account of the lateness of the hour, it was not thought advisable to act on them and they were referred for consideration either by letter or at a meeting of the Council to be called later.

The meeting then adjourned.

E. F. KELLY, *Secretarr.*

"A Method for the Preparation of Parenteral Dextrose Solutions," by Harvey A. K. Whitney.—Abstract of Paper, Scientific Section, A. PH. A.

A discussion of the preparation of sterile dextrose solution for hospital use. It includes a description of the distilling apparatus, glassware, sterilization and accessory, as well as hydrogen-ion concentration control of the finished solution.

EDITORIAL NOTES

Because of association matter in this issue a number of items were omitted from this department.

A CENTURY OF PROGRESS.

The International Exposition—A Century of Progress—opened May 26th and closes November 1st. Indications are that this year the exposition will be greater than last year; additional exhibits have been included and improvements have been made in some of the entertainment features. The Pharmacy Exhibit will be continued.

ABSTRACTS OF PHARMACOPŒIAL LITERATURE.

Another "Abstract of Scientific Literature" dealing with pharmacopœial subjects, appearing in publications of 1933, has been prepared under the direction of F. W. Nitardy by E. R. Squibb & Sons. Copies of these abstracts have been sent out with the compliments of the Board of Trustees of the U. S. P. convention. This abstract is issued as a supplement to the series of the U. S. P. Revision. A very limited edition has been published and all copies have been distributed to the libraries of medical and pharmaceutical colleges and may be consulted there; no extra copies are available. This is a most valuable contribution and has been abstracted by the staff of the Brooklyn Plant Library, Miss E. Pickering, Director, and published under the auspices of the U. S. P. Board of Trustees. The abstracts have been taken from more than three hundred different Journals in the fields of medicine, pharmacy, chemistry and biology, and constitutes a distinct service for pharmacopœial revision and the service of libraries and research workers.

LEGIBLE PRESCRIPTIONS.

A news dispatch from Berlin states that sick-fund officials have complained to the government about physicians writing prescriptions so illegibly that pharmacists have difficulty in reading them. The government has issued a general order to physicians to improve their handwriting.

The same condition, but evidently not to the same extent, is brought out in the National Drug Store Survey issued by the Department of Commerce, Bureau of Foreign and Domestic Commerce. "The Professional Pharmacy," published by the AMERICAN PHARMACEUTICAL ASSOCIATION presents the findings of an intensive survey among the strictly professional type of retail pharmacies; a detailed analysis of operations, methods, etc.—A detailed analysis of nearly 24,000 prescriptions from selected drug stores—shows the importance of the prescription department in the operation of a modern retail drug store.

DONATIONS.

Daughters of the late Charles E. Dohme, Mrs. E. C. True and Mrs. C. W. Holton, have presented to the museum of the American Institute of Pharmacy a beautiful counter scale which was used by the retail firm of Sharp & Dohme prior to the establishment of the manufacturing establishment under that name.

Mrs. C. W. Richardson of Washington, D. C., has presented a stone mortar from Sothorn's drug store in Georgetown; also an ointment jar from John Paul Jones' brothers' drug store in Fredericksburg.

Lawrence Williams, of Baltimore, presented a representative number of show globes from his large collection. He also donated several scales and balances, ointment jars and mortars, all of which made an attractive display in the museum of the A. PH. A. headquarters.

The display, by Chairman E. Fullerton Cook of pharmacopœias and of circulars, acquainted the visitors with the methods of revision and the tremendous amount of work and careful study involved in U. S. P. revision and attracted much attention.

Pharmacist J. Leon Lascoff's collection of foreign prescriptions and of methods for finishing them forms an interesting display. Mrs. Whelpley's large assortment of badges is an interesting study in color, art and association history.

An unusual gift was made by James H. Beal at a general session in the presentation of a fine specimen of Bezoar to the ASSOCIATION. Further mention will be made of this valuable gift in reporting the proceedings of the meeting. Charles H. LaWall gave an historical account of Bezoar stones.

PERSONAL AND NEWS ITEMS.

Under the title of "The Consummation of Our Hopes and Dreams," the *Druggists' Circular* for May published a chronological story of the erection of the American Institute of Pharmacy. It is a valuable historical record.

Senator Royal S. Copeland addressed the Joint Meeting of the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy on Food and Drug Legislation, during the A. PH. A. convention.

Prof. Anton Hogstad, Jr., in speaking before Oklahoma Pharmaceutical Association, presented the following resolution which was adopted by the Association:

"Let it be resolved that the so-called commercial pharmacy be designated by the title of drug and sundry merchandising, and that the so-called professional pharmacy be designated by its proper title of pharmacy," the resolution says, "so that confusion will not exist in the minds of the members of allied professions and the laity as to the aims and purposes of pharmacy."

The office of the National Drug Clerk has been moved from their old location on S. Dearborn St. to the Civic Opera House at 20 N. Wacker Drive.

President Frank A. Blair, of the Proprietary Association, was given a testimonial dinner on May 23rd, at the Waldorf-Astoria New York City.

Joseph W. E. Harrisson, Assistant Director of Research at Philadelphia College of Pharmacy and Science, has been reëlected President of the Philadelphia Institute of Consulting Chemists and Chemical Engineers.

Former President, A. PH. A., **Robert L. Swain** delivered the address to the graduating class of the College of Pharmacy, Columbia University, on May 24th. He also will speak before the graduating class of Connecticut College of Pharmacy, New Haven, on June 4th. Classmates presented him with a silver flower bowl during the A. PH. A. convention.

Dean A. G. DuMez, dean of the School of Pharmacy, will be the guest speaker at the annual meeting of the Alumni Association School of Pharmacy, Rutgers University, Newark, N. J.

The National Retail Drug Authority, Washington, D. C., has moved from the Tower Building to the National Press Building in Washington.

L. M. Kantner has been appointed by Governor Albert C. Ritchie to the Maryland Board of Pharmacy for a term of five years, beginning May 1934. He has been engaged in retail pharmacy ever since his graduation from the School of Pharmacy of the University of Maryland in 1909. He is a former president of the Maryland Pharmaceutical Association and the Baltimore Branch of the A. PH. A.

JUNE STATE ASSOCIATION MEETINGS.

Alabama, 19–21, Montgomery.
Arkansas, 12–14, Texarkana.
California, 3–7, Sacramento.
Colorado, 12–14, Colorado Springs.
Connecticut, 27–28, New London.
Delaware, 27–28, Rehoboth Beach.
Georgia, 12–14, Savannah.
Idaho, 25–26, Lewiston.
Indiana, 19–21, Lake Wewasee.
Kentucky, 19–22, Paducah.
Maine, 27–29, Belgrade.
Maryland, 21–24, Baltimore.
Massachusetts, 26–28, Swampscott.
Michigan, 26–28, Pontiac.
Mississippi, 18–20, Jackson.
New Hampshire, 17–19, Portsmouth.
New Jersey, 13–15, Asbury Park.
New York, 21–24, Bolting Landing, Lake George.
North Carolina, 25–27, Durham.
North Dakota, 13–15, Dickinson.
Ohio, 24–July 1, Cruise on Great Lakes in S. S. *Octarara*.
Pennsylvania, 19–21, Wernersville.
Rhode Island, 25–26, Watch Hill.
South Carolina, 20–21, Charleston.
South Dakota, 11–13, Brookings.
Texas, 18–21, Mineral Wells.
Utah, 11–12, Ogden.
Vermont, 17–19, Fairlee.
Washington, 27–29, Tacoma.
West Virginia, 11–12, Huntington.
Wisconsin, 19–31, Fond du Lac:
Wyoming, 25–26, Casper.

The **Proprietary Association** met in New York City, May 22–24.

JAPAN PHARMACISTS' UNION.

The 12th annual convention of the Japan Pharmacists' Union was held at Shimizu Building, Nihonbashi-ku, Tokyo, on February 16th and 17th.

OBITUARY.

HERMAN A. METZ.

Herman A. Metz, member of the A. PH. A. and internationally known in the chemical industry, died May 17th, in a New Rochelle hospital, aged sixty-six years. He was born in New York City and educated in the public schools. He attended night classes in chemistry at Cooper Union and completed the course. As a youth he went to work for a chemical importer, later Koechl & Co. When the firm was incorporated in 1893 Mr. Metz became vice-president and treasurer and when Mr. Koechl retired Mr. Metz acquired his interest. The business was later incorporated under the name of H. A. Metz & Co. He also organized the General Dyestuffs Corporation and, in 1930, he organized the Advance Solvents & Chemical Corporation.

Mr. Metz was active for some time in politics, serving the city as Comptroller and as a Congressman from Brooklyn from 1913 to 1915. He was also a member of the Board of Education for several terms and active in various municipal affairs. He is survived by his widow and four sons.

JOHN BLOCKI.

John Blocki, Honorary President of the Illinois Pharmaceutical Association and member of the A. PH. A., died May 10th, after a lingering illness, aged eighty-nine years. He was one of the founders, with T. N. Jamieson and Wilhelm Bodemann, of the Chicago Veteran Druggists' Association, in 1898.

John C. Robinson, Dallas, Texas, engaged in the wholesale drug business and as manufacturers' representative for about sixty years, died April 25th, at his home in Dallas, Texas, aged seventy-five years. He graduated from the Maryland College of Pharmacy in 1877. For a time he was in the employ of Wm. H. Brown & Bros. in Baltimore and then joined the firm of Powers & Whiteman as traveling representative. When this firm merged with Merck & Co. he continued as representative. He is survived by his widow and three sons. Lewis W. Robinson is southern representative of Merck & Co. and Frank T., District Sales Manager for the Monsanto Chemical Co.

In the sketch of the April JOURNAL of the late Frank B. Stephens it should have been stated that Mr. Stephens was an alumnus of the Illinois College of Pharmacy, Class of 1887.

The death of **Prof. Herbert C. Kassner,** of Columbia University College of Pharmacy, was announced May 17th; a sketch of the deceased will appear in the June[1] issue of the JOURNAL. His passing is a great loss to the ASSOCIATION and the institution which he served faithfully for a number of years and sympathy is expressed to the bereaved. The writer asks pardon for referring here to an article by Mrs. Kassner, in 1931, on "Pharmaceutical History Brought to Light by a Famous Misnamed Picture," and which had wide distribution; the picture adorns many pharmacies.

Dr. Jacob A. Flexner, prominent as a physician and as a pharmacist, died at the home of his son, Dr. M. Flexner, in Louisville, Ky., April 13th, aged 76 years. He was an alumnus of Louisville College of Pharmacy and, later, studied medicine, becoming a leader in that profession.

SOCIETIES AND COLLEGES.

LIST OF REGISTRANTS, ANNUAL MEETING, A. PH. A., WASHINGTON, D. C.

Corrections and additions are respectfully requested; a number evidently failed to sign the official Registration Book; the names are given as recorded. Please address JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION, 2215 Constitution Ave., Washington, D. C.

ACHESON, W. R., MR. AND MRS., Cambridge, Mass.
ADAMO, M. E., Boston, Mass.
ADAMS, W. D., MR. AND MRS., Forney, Texas.
AMES, HAZEL, Medford, Mass.
ANDERSON, W. C., MR. AND MRS., Brooklyn, N. Y.
ANDREWS, M. J., MR. AND MRS., Baltimore, Md.
ARNY, H. V., New York City.
AVERY, CHARLES H., Pasadena, Calif.

BACON, F. J., MR. AND MRS., Cleveland, Ohio.
BAILEY, MRS. GEORGE, Detroit, Mich.
BALDINGER, LAWRENCE H., South Bend, Ind.
BALLEW, J. C., Lenoir, N. Car.
BAROL, ALFRED, Philadelphia, Pa.
BAUER, J. C., MR. AND MRS., Baltimore, Md.
BEAL, GEO. D., MR. AND MRS., Pittsburgh, Pa.
BEAL, JAMES H., MR. AND MRS., Cocoa, Florida.
BEARD, J. G., Chapel Hill, N. Car.
BECKER, I. A., Chicago, Ill.
BELL, MRS. JOHN G., Washington, D. C.
BERG, F. F., Floral Park, N. Y.
BERGY, G. A., Morgantown, W. Va.
BEST, T. M., Malden, Mass.
BIBBINS, F. E., MR. AND MRS., Indianapolis, Ind.

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BIRD, J. C., Philadelphia, Pa.
BJORNSTAD, O. A., MR. AND MRS., Spencer, Iowa.
BLACKALL, GEORGE, Bristol, Conn.
BLISS, A. R., Memphis, Tenn.
BLOCK, A., Brooklyn, N. Y.
BLOME, W. H., Detroit, Mich.
BOAS, A., Washington, D. C.
BOHN, HERBERT, Indianapolis, Ind.
BOSLEY, J. O., Wilmington, Ill.
BOWEN, MRS. J. L., Chicago, Ill.
BOWER, S. W., Buffalo, N. Y.
BRADLEY, THEODORE J., Boston, Mass.
BRAKKE, N. N., McVille, N. Dak.
BREWER, C. M., MR. AND MRS., Oklahoma City, Okla.
BREWER, S. W., Buffalo, N. Y.
BRITT, F. A., MR. AND MRS., Evansville, Ind.
BROWN, HENRY, Scranton, Pa.
BUDINGER, MRS. CAROLINE W., Williamsport, Pa.
BURDINE, A. V., MR. AND MRS., Washington, D. C.
BURLAGE, H. M., MR. AND MRS., Chapel Hill, N. Car.
BURNIAC, J. J., Detroit, Mich.
BURTON, J. C., Stroud, Okla.
BUTLER, H. M., Washington, D. C.
BUTZ, LEWIS, Philadelphia, Pa.

CAMPBELL, G. G., Pittsburgh, Pa.
CAMPBELL, WM. B., MR. AND MRS., Washington, D. C.
CANIS, O. P. M., New Brunswick, N. J.
CANNON, C. C., Savannah, Ga.
CASPARI, C. E., St. Louis, Mo.
CHAGNON, WILFRED, Newton, Mass.
CHAMBERLAIN, N. T., Cleveland, Ohio.
CHRISTENSEN, B. V., Gainesville, Fla.
CHRISTENSEN, H. C., Chicago, Ill.
CLARK, R. W., Madison, Wis.
CLAYTON, CHARLES J., Denver, Colo.
CLIFFE, W. L., Philadelphia, Pa.
COLE, B. OLIVE, Baltimore, Md.
COLLINS, C. W., Parkersburg, W. Va.
COLLINS, GEORGE W., Chicago, Ill.
CONIGLIO, FRANK L., Gainesville, Fla.
COOK, E. F., MR. AND MRS., Philadelphia, Pa.
COOK, ROY B., Charleston, W. Va.
COOPER, ZADA M., Iowa City, Iowa.
COSTELLO, P. H., Cooperstown, N. Dak.
COUSINS, WALTER, MR. AND MRS., Dallas, Texas.
COX, C. L., Newark, N. J.
CRISWELL, F. M., Washington, D. C.
CROCKETT, W. G., Richmond, Va.
CROSBIE, H. H., Cincinnati, Ohio.
CROUCH, R. L., MR. AND MRS., Roanoke, Va.
CROWE, R. L., Memphis, Tenn.
CURRENS, T. F., MR. AND MRS., New York City.
CURRY, G. L., Louisville, Ky.

DARGAVEL, J. W., Chicago, Ill.
DAVIDOV, HYMAN, Baltimore, Md.
DAVIDOV, MRS. O. V., Baltimore, Md.
DAY, W. B., Chicago, Ill.
DELGADO, F. A., Washington, D. C.
DIERMIER, G. P., Washington, D. C.
DILLE, J. M., Washington, D. C.
DODGE, F. D., Bayonne, N. J.
DOWNEY, W. C., Washington, D. C.
DRAIN, GEORGE W., Newark, N. J.
DUMEZ, A. G., MR. AND MRS., Baltimore, Md.
DUNNING, H. A. B., MR. AND MRS., Baltimore, Md.
DURHAM, E. E., MR. AND MRS., Corunna, Mich.
DYE, C. A., MR. AND MRS., Columbus, Ohio.
DYER, R. E., New York City.

EBERLE, E. G., MR. AND MRS., Washington, D. C.
ELDRED, F. R., Jersey City, N. J.
ELLICOTT, CHARLES S., Catonsville, Md.
EMANUEL, LOUIS, MR. AND MRS., Pittsburgh, Pa.
ENGLKING, MRS. A. G. AND DAUGHTER, Orange Grove, Texas.
EPPLEY, J. A., Philadelphia, Pa.
EVANS, CHARLES H., Warrenton, Ga.

FABEL, L. R., Detroit, Mich.
FALCONER, H. S., Newport News, Va.
FAXON, H. D., Kansas City, Mo.
FERRING, LAWRENCE, New Orleans, La.
FISCHELIS, R. P., MR. AND MRS., Trenton, N. J.
FRAILEY, CARSON P., MR. AND MRS., Washington, D. C.
FRAILEY, WM. A., Washington, D. C.
FRASER, S. W., New York City.
FREERICKS, F. H., Cincinnati, Ohio.
FUHRMAN, C. J., MR. AND MRS., Washington, D. C.
FULMER, M. H., Gainesville, Fla.
FUNK, JOHN A. J., MR. AND MRS., Galveston, Ind.

GABEL, L. F., MR. AND MRS., Detroit, Mich.
GARLOUD, F. E., Denver, Colo.
GAW, R. R., Pittsburgh, Pa.
GAYLE, J. W., Franklin, Ky.
GIFFEN, R. C., Washington, D. C.
GILBERT, C. T., MR. AND MRS., Norton, Conn.
GILL, J. J., Providence, R. I.
GILSON, C. F., Centerdale, R. I.
GLASSFORD, JOHN, Baltimore, Md.
GLOVER, WM. H., MR. AND MRS., Lawrence, Mass.
GODDING, MRS. J. G., Boston, Mass.
GOLDSTEIN, MORRIS G., Washington, D. C.
GONZALES, CARLOS G., Ponce, P. R.
GRANT, E. V., Baltimore, Md.
GRAY, WM., Chicago, Ill.
GREEN, ANTOINE E., Washington, D. C.
GREENBAUM, F. R., Philadelphia, Pa.
GRIFFIN, L. W., MR. AND MRS., Boston, Mass.
GRIFFITH, IVOR, Philadelphia, Pa.
GUNDLING, JOHN L., Washington, D. C.
GUSTAFSON, CHARLES, JR., Hartford, Conn.

HANCOCK, F. W., Oxford, N. Car.
HANCOCK, JAMES E., Baltimore, Md.
HANKINS, W. M., MR. AND MRS., Daytona Beach, Fla.
HARDIE, WM., MR. AND MRS., Fall River, Mass.
HARRISSON, J. W. E., Philadelphia, Pa.
HAVENHILL, L. D., MR. AND MRS., Lawrence, Kans.
HAWK, JUDSON, Atlanta, Ga.
HAWKINS, J. L., Huntington, W. Va.
HAY, E. A., Portland, Me.
HAYMAKER, E. B., Clarksburg, W. Va.
HAYMAN, ALICE, Morgantown, W. Va.
HAYMAN, J. L., MR. AND MRS., Morgantown, W. Va.
HEIN, ELIZABETH, New York City.
HEIN, H. F., MR. AND MRS., San Antonio, Texas.
HELMS, SAMUEL T., Baltimore, Md.
HENRY, MRS. S. C., Washington, D. C.
HERBST, WM. P., Washington, D. C.
HILTON, S. L., MR. AND MRS., Washington, D. C.
HITCHENS, R. M., St. Louis, Mo.
HOGE, ERNEST, Wheeling, W. Va.
HOGSTAD, ANTON, MR. AND MRS., St. Louis, Mo.
HOLTON, C. W., MR. AND MRS., Essex Fells, N. J.
HORST, HERMANN, Stuttgart, Ark.
HOSKINS, MISS VIRGINIA, Baltimore, Md.
HUNT, WM. H., Baltimore, Md.
HUSA, W. J., Gainesville, Fla.
HUTCHINS, RICHARD, St. Louis, Mo.

ICHNIOWSKI, C. T., Baltimore, Md.
IRELAND, E. J., Madison, Wis.
IRIZARRY, R. L., P. R.

JACOBS, FRED A., Toronto, Canada.
JACOBS, M. L., Chapel Hill, N. Car.
JELINEK, J. P., St. Paul, Minn.
JENKINS, GLENN L., Baltimore, Md.
JOHNSON, HENRY S., New Haven, Conn.
JOHNSON, L. V., St. Michaels, Md.
JONES, ROWLAND, Gettysburg, S. Dak.
JONGEWARD, M., Fargo, N. Dak.
JORDAN, C. B., MR. AND MRS., Lafayette, Ind.

KAHLER, LOUIS, MR. AND MRS., Baltimore, Md.
KANTNER, L. M., MR. AND MRS., Baltimore, Md.
KANTROWITZ, HUGO, Richmond Hill, N. Y.
KEBLER, L. F., MR. AND MRS., Washington, D. C.
KELLY, E. F., MR. AND MRS., Washington, D. C.
KELLY, FRANK P., MR. AND MRS., Carbondale, Pa.
KELLY, FRANK P., JR., Carbondale, Pa.
KELLY, KATHLEEN, Washington, D. C.
KENDIG, H. E., Chestnut Hill, Philadelphia, Pa.
KIRBY, F. B., Evanston, Ill.
KOCH, J. A., MR. AND MRS., Pittsburgh, Pa.
KRANTZ, J. C., JR., MR. AND MRS., Baltimore, Md.
KREMERS, EDWARD, Madison, Wis.
KREMES, A. I., Philadelphia, Pa.
KRUMWIEDE, H. A., MR. AND MRS., New Brunswick, N. J.
KRUSEN, WILLIAM, Philadelphia, Pa.

LAKEY, R. T., Detroit, Mich.
LAMPA, R. R., MR. AND MRS., Tenneck, N. J.
LANWERMEYER, C. F., Waukegan, Ill.
LASCOFF, J. L., New York City.
LAWALL, C. H., MR. AND MRS., Philadelphia, Pa.
LEE, J. W., Washington, D. C.
LEEPER, MRS. AUGUSTA, Washington, D. C.
LEIGH, T. R., Gainesville, Fla.
LEMON, A. B., Buffalo, N. Y.
LEONARD, C. S., Tuckahoe, N. Y.
LEWIS, H. B., Ann Arbor, Mich.

LITTLE, ERNEST, MR. AND MRS., Highland, N. J.
LLOYD, J. T., MR. AND MRS., Cincinnati, Ohio.
LLOYD, OLITA, Cincinnati, Ohio.
LOFGREN, F. V., Valparaiso, Ind.
LOVELAND, P. R., Atlantic City, N. J.
LOVIS, H. C., South Orange, N. J.
LUDWIG, ANDREW F., Baltimore, Md.
LUKENS, F. J., Clarendon, Va.
LYMAN, R. A., Lincoln, Nebr.

MCCARTNEY, F. L., MR. AND MRS., Chicago, Ill.
MCCLOSKEY, J. F., New Orleans, La.
MCCULLOUGH, FRANK V., New Albany, Ind.
MACHT, D. I., Baltimore, Md.
MALAKOFF, M. S., New York City.
MANSON, A. P., MR. AND MRS., Gardiner, Me.
MARQUIER, A. F., South Orange, N. J.
MARR, LEON H., MR. AND MRS., Farmington, Me.
MAXWELL, D. L., Washington, D. C.
MEADS, W. F., Des Moines, Iowa.
MEISSNER, F. W., MR. AND MRS., La Porte, Ind.
MENENDEZ, JOSÉ, Rio Piedras, P. R.
MERRELL, C. G., Cincinnati, Ohio.
MICKELSEN, A. O., Portland, Ohio.
MILNE, F. A., Pratt, Kansas.
MITCHELL, J. S., Washington, D. C.
MOORE, DORIS R., Ada, Ohio.
MOOSE, W. LEE, Albermarle, N. Car.
MOSKEY, T. A., MR. AND MRS., Washington, D. C.
MOSSOP, MISS CARRIE, Baltimore, Md.
MOTLEY, E. T., Columbia, S. Car.
MUESING, WM. C., New Ulm, Minn.
MUIR, L. H., Farmington, Me.
MULDOON, H. C., Pittsburgh, Pa.
MULFORD, H. K., Philadelphia, Pa.
MULLIGAN, PAT, Topeka, Kans.
MUNCH, JAMES C., MR. AND MRS., Philadelphia, Pa.
MURDOCK, BURTON, MR. AND MRS., Kennebunk, Me.

NEVIN, THOMAS, New York City.
NEWCOMB, E. L., MR. AND MRS., Montclair, N. J.
NEWTON, H. C., Omaha, Nebr.
NICHOLS, A. B., Philadelphia, Pa.
NICOLAI, NATHANIEL, Baltimore, Md.
NILES, EDWARD H., Indianapolis, Ind.
NITARDY, F. W., Brooklyn, N. Y.

O'CONNELL, C. LEONARD, Pittsburgh, Pa.
OESTER, Y. T., Notre Dame, Ind.
OSOL, ARTHUR, Philadelphia, Pa.

PACKARD, C. H., MR. AND MRS., Boston, Mass.
PARADOWSKY, JOE, Kansas City, Kans.
PARKER, H. W., Jonesboro, Ark.
PEACOCK, J. C., MR. AND MRS., Philadelphia, Pa.
PHILIP, W. B., MR. AND MRS., Washington, D. C.
PHILLIPS, MRS. SHINE, Big Springs, Texas.
PIERCE, CHARLES S., MR. AND MRS., Springvale, Me.
PILCHARD, J. B., Harrisburg, Pa.
PITTENGER, P. S., Philadelphia, Pa.
PLAXCO, J. M., Due West, S. Car.
POWELL, LESTER, MR. AND MRS., Falls Church, Va.

QUIMBY, M. W., MR. AND MRS., Ithaca, N. Y.

RAABE, R. H., MR. AND MRS., Ada, Ohio.
RAABE, MISS RUTH, Ada, Ohio.
REESE, D. J., Philadelphia, Pa.
REESE, J. E., Philadelphia, Pa.
REESE, R. C., MR. AND MRS., Topeka, Kans.
REIF, E. C., Pittsburgh, Pa.
RHODES, GEORGE W., Newark, Del.
RICHARDSON, L. N., Bel Air, Md.
RIDER, T. H., Cincinnati, Ohio.
RIEMENSCHNEIDER, J. H., Chicago, Ill.
RIPPETOE, J. R., New York City.
RISING, L. W., Newark, N. J.
RIVARD, W. H., MR. AND MRS., Providence, R. I.
RODDIS, L. H., Washington, D. C.
RODMAN, R. W., Bloomfield, N. J.
ROEG, L. M., Rahway, N. J.
ROSE, I. W., Chapel Hill, N. Car.
ROSEN, HARRY, Washington, D. C.
ROSIN, JOSEPH, Plainfield, N. J.
ROTH, H. D., Gainesville, Fla.
ROWE, L. W., MR. AND MRS., Detroit, Mich.
RUDD, W. F., MR. AND MRS., Richmond, Va.
RUDY, H. R., MR. AND MRS., Hagerstown, Md.
RUNYON, E. W., New York City.
RUSSELL, JASON, Detroit, Michigan.
RUSSELL, O. E., MR. AND MRS., Elkhart, Ind.

SAALBACH, LOUIS, Pittsburgh, Pa.
SAMPSON, W. L., Newark, N. J.
SAVANNAH, CLAUDE C., Savannah, Ga.
SAWYER, J. R., MR. AND MRS., Boston, Mass.
SCHACTERLE, G. K., MR. AND MRS., Philadelphia, Pa.
SCHAEFER, F. C. A., MR. AND MRS., New York City.
SCHICKS, G. C., Montclair, N. J.
SCHLICHTING, H. E., MR. AND MRS., Lansing, Mich.
SCHOETZOW, R. E., Brooklyn, N. Y.
SCHWARZ, A. J., Memphis, Tenn.
SCHWARZWALDER, S. J., MR. AND MRS., Columbus, Ohio.
SCOVILLE, W. L., MR. AND MRS., Detroit, Mich.
SECORD, G. L., Chicago, Ill.
SHANGRAW, W. B., MR. AND MRS., Rutland, Vt.
SILSBY, J. N., Cliffside, N. J.
SISSON, JOSEPH M., Boston, Mass.
SLOCUM, J. W., MR. AND MRS., Indianola, Iowa.
SMITH, D. H., Washington, D. C.
SMITH, UPSHER, St. Paul, Minn.
SNOW, CLYDE M., MR. AND MRS., Chicago, Ill.
SNYDER, J. P., MR. AND MRS., Norwich, N. Y.
SONDERN, C. W., MR. AND MRS., Cincinnati, Ohio.
SONNENBURG, MISS AMELIA, Baltimore, Md.
SPEASE, EDWARD, MR. AND MRS., Cleveland, Ohio.
STANBURY, R. B. J., Toronto, Canada.
STOCKING, C. H., Ann Arbor, Mich.
STOUT, E. P., Detroit, Mich.
STURGEON, W. J., MR. AND MRS., Kittanning, Pa.
SUTER, A. L., Washington, D. C.
SWANSON, E. E., Indianapolis, Ind.
SWARINGEN, D. C., China Grove, N. Car.
SWENSON, T. L., Seattle, Wash.

TAYLOR, F. O., Detroit, Mich.
TEETERS, WILBER J., Iowa City
TENNYSON, I. A., Washington, D. C.
TERRY, R. E., Chicago, Ill.
THOMAS, MRS. R. J., Dallas, Texas.
THOMPSON, M. R., MR. AND MRS., Baltimore, Md.
TICE, L. F., Philadelphia, Pa.

UTECH, MRS. P. H., Meadville, Pa.

VANDERKLEED, CHARLES E., Philadelphia, Pa.
VARS, C. A., Westerly, R. I.
VILAS, FRED, Pierre, S. Dak.

WALES, H., Washington, D. C.
WALTON, L. L., MR. AND MRS., Williamsport, Pa.
WARREN, L. E., Chevy Chase, Md.
WHELPLEY, MRS. H. M., St. Louis, Mo.
WHITLEY, R. S., Chapel Hill, N. Car.
WHITNEY, H. A. K., MR. AND MRS., Ann Arbor, Mich.
WHYTE, H. H., Philadelphia, Pa.
WICKHAM, E. A., Nutley, N. J.
WILCOX, W. D., Philadelphia, Pa.
WILLIAMS, LAWRENCE S., Baltimore, Md.
WILLIAMSON, R. E. L., Baltimore, Md.
WILSON, R. C., MR. AND MRS., Atlanta, Ga.
WIMMER, C. P., New York City.
WINNE, A. L. I., Richmond, Va.
WOODWARD, J. S., Phoebus, Va.
WRIGHT, C. F., Boston, Mass.
WRIGHT, T. G., Baltimore, Md.
WULLING, F. J., Minneapolis, Minn.
WYNN, FRANCES M., Washington, D. C.

YOUNG, G. O., Buckhannon, W. Va.
YOUNGKEN, H. W., Boston, Mass.

ZIEFLE, A., MR. AND MRS., Corvallis, Ore.
ZOELLER, E. V., Tarboro, N. Car.

OFFICERS OF THE ILLINOIS PHARMACEUTICAL ASSOCIATION.

The Illinois Pharmaceutical Association meeting in LaSalle, May 15th–17th was well attended. It was decided to continue holding the state convention in May instead of June. The following officers were elected: *President*, George V. Haering, Chicago; *First Vice-President*, H. M. Anderson, Monmouth; *Second Vice-President*, L. Brown Hamilton, Galesburg; *Third Vice-President*, E. J. Merriman, Joliet; *Treasurer*, George Bennett, Urbana; *Secretary*, Wm. B. Day, Chicago.

JOINT MEETING, MARYLAND PHARMACEUTICAL ASSOCIATION AND DELAWARE PHARMACEUTICAL SOCIETY.

A joint meeting of the Maryland Pharmaceutical Association and Delaware Pharmaceutical Society was held at Wilmington. Among the papers discussed were "The Prescription Department," by Frank L. Black; "Price Stabilization," by Robert W. Rodman. Considerable attention was paid to the latter subject.

ARKANSAS DRUGGISTS ELECT SUCCESSOR TO EDGAR D. OSLIN.

At a joint meeting of the executive board of the Arkansas Pharmaceutical Association and the Arkansas State Board of Pharmacy on April 11th, Ira Brite was elected secretary-manager of the state association to fill the unexpired term of the late Edgar D. Oslin, who died April 9th. The 52nd Arkansas state convention will be held in Texarkana.

NEBRASKA PHARMACEUTICAL ASSOCIATION.

The 53rd annual convention of the Nebraska Pharmaceutical Association which closed May 9th at Omaha was well attended and much interest was shown in the discussions of every-day problems. Among the papers presented were: "Show Cards," by Carl P. Berrgren; Monte Powell represented the N. A. R. D.; F. S. Bukey spoke on "What Does It Cost to Produce a Cosmetic;" Charles W. Bauer discussed "Food and Drug Laws and the Copeland-Tugwell Bill;" J. E. Griffin spoke on "Helping the Doctor Help His Patients;" George W. O'Malley discussed "The Sales Tax;" and M. T. Williamson, "The Retail Drug Code."

It was decided to hold the next annual convention in Lincoln during February while the Legislature is in session.

The following officers were elected: *President*, Guy Butler, Lincoln; *First to Fifth Vice-Presidents*, H. L. Bellamy, Cambridge; T. J. Ryan, Omaha; C. S. Lincoln, Lincoln; A. O. Gordon, Merna; C. H. Saults, Gordon. Orel Jones, Oconto, was elected *Treasurer*, and J. G. McBride, Lincoln, *Secretary*.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The ninety-fourth meeting of the American Association for the Advancement of Science will be held in Berkeley, Calif., from June 18 to 23, 1934. This will be the fourth summer meeting of the association on the Pacific Coast, previous meetings having been held at San Francisco in 1915, at Portland, Ore., in 1925 and at Pasadena in 1931. All these have been joint meetings with the Pacific Division. This year the University of California and the Pacific Division of the association are cooperating as hosts. Sessions will be held for the most part in lecture halls of the University of California on the campus at Berkeley.

COPELAND BILL DEBATED.

The Food and Drugs bill by Senator Copeland was taken up in the Senate on May 16th and considered for about an hour and deferred to make way for legislation urgently desired by the Administration. Senator Copeland said that he would use every honorable means to secure passage of the bill at this session. The President is understood to favor the principle of the bill.

NEW JERSEY CODE.

Governor Harry Moore, of New Jersey, signed the State code for retail druggists, which provides for a mark-up of 15 per cent over the manufacturers' wholesale list price to retailers or wholesalers in dozen lots or less. The code will operate under a 60-day trial.

The Governor addressed the final hearing on the code and urged retailers to coöperate in making the code effective. President R. P. Fischelis contributed largely to the success by presenting statistical information in support of the code.

PACKAGE MEDICINE CODE IS APPROVED.

The Trade Practice Provisions of the Code of Package Medicine Manufacturers provides:

Section 1. (*a*) A member of the industry shall sell his products, commodities or articles to primary distributors on an open price basis that is fair to all, with the same allowances, terms and prices as to products, quantities or trade classifications.

(*b*) The term "open prices," as used in this section means a price list which is published by each member of the industry for the equal information of all primary distributors in the separate or the several classes of primary distributors, and which state all the prevailing terms of sale for the separate or the several classes of primary distributors.

(*c*) Compensation paid to a primary distributor by a member of the industry for cooperative advertising, counter displays, window displays, salesmen's efforts or any other special sales activities, shall be uniform according to kind and scope of services rendered, and not on a basis of discounts on quantity purchases.

(*d*) Each member of the industry or his agent shall file his current price list with the code authority within thirty days after the approval of this code. Each member of the industry shall file (by registered mail) any subsequent revisions of such price list with said code authority.

(*e*) This section shall not apply to the sale of private brand products on contract by a manufacturer to the owner of such private brand, nor to the sale of products for export, nor to bids submitted to governmental units.

Section 2. No member of the industry shall use advertising, whether printed, radio, display, or of any other nature, which is inaccurate in any material particular or misrepresents merchandise (including its use, trademark, grade, quantity, size, origin, material, content, preparation, credit terms, values, policies or services) and no member of the industry shall use advertising and/or selling methods concerning curative or therapeutic effects which are false and fraudulent.

Section 3. No member of the industry shall use advertising which refers inaccurately in any material particular to any competitor or his merchandise, prices, values, credit terms, policies or service.

Section 4. No member of the industry shall give, permit to be given, or directly offer to give, anything of value for the purpose of influencing or rewarding the action of any employee, agent or representative of another in relation to the business of the employer of such employee, the principal of such agent or the represented party, without the knowledge of such employer, principal or party. This rule shall not be construed to prohibit the free and general distribution of articles commonly used for advertising except so far as such articles are actually used for commercial bribery as hereinabove defined.

Section 5. The re-packaging or transferring of any article from the container of the member of the industry into another container, and the offering of such re-packaged item for sale with intent or capacity to deceive the purchaser is an unfair trade practice.

Section 6. The unauthorized use of a copy, counterfeit or colorable imitation of the trade-mark, label or identifying name or device of the product of another corporation, association, firm or person, which has the tendency and capacity to mislead purchasers or prospective purchasers is an unfair trade practice.

Section 7. No member of the industry shall secretly offer or make any payment or allowance of a rebate, refund, commission, credit, unearned discount or excess allowance, whether in the form of money or otherwise, for the purpose of influencing a sale, nor shall a member secretly extend to any customer any special service or privilege not extended to all customers of the same class.

SMUGGLING NARCOTICS INTO PRISON.

Four defendants were convicted and two, Dewey C. Doss and Joseph H. Miro, were acquitted March 30th, on charges of conspiring to smuggle narcotics into the Atlanta Federal Penitentiary.

AMERICAN PHARMACEUTICAL MANUFACTURERS' ASSOCIATION.

The annual meeting of the American Pharmaceutical Manufacturers' Association will be held in Chatham on Cape Cod, during the week of June 25th. The headquarters hotel is the Chatham Bars Inn.

CHARLES RICE.

A former U. S. P. chairman.

MERGER OF ALCOHOL AND REVENUE BUREAUS.

The Bureau of Industrial Alcohol and the Bureau of Internal Revenue were merged May 10th. The old alcohol bureau becomes the Alcohol Tax Unit of the Bureau of Internal Revenue, together with a large part of the alcoholic beverage unit of the Department of Justice.

The unit will be headed by Arthur J. Mellott as Deputy Commissioner of Internal Revenue, but until passage of the deficiency appropriation bill providing funds for this office Mr. Mellott will serve as a special assistant to the Commissioner of Internal Revenue. He will have two assistants, one in charge of permit work and the other in charge of enforcement. The former has not yet been chosen, but the latter post has been filled by Capt. William R. Sayles, U. S. N. D. S. Bliss, who has been Commissioner of Industrial Alcohol during the past five months, returns to his former position as Acting Deputy of Internal Revenue in charge of the miscellaneous tax unit.

Commenting on the transfer, the Secretary of the Treasury, Henry Morganthau, Jr., declared that, for the present, the existing regulations and machinery for control of nonbeverage alcohol would remain unchanged, but that changes might be made later if there appeared to be loopholes for tax evasion. The personnel of the alcohol control organization will remain the same. From a report of the *Paint, Oil and Drug Reporter*.

PHARMACISTS AT THE TOMB OF THE UNKNOWN SOLDIER.

Members of the AMERICAN PHARMACEUTICAL ASSOCIATION and ladies visited the Tomb of the Unknown Soldier during the recent convention. Former president L. L. Walton, as representative, spoke in part as follows: "Representing President R. P. Fischelis and the members of the AMERICAN PHARMACEUTICAL ASSOCIATION, I have the honor of placing this wreath upon the tomb of one, an unknown soldier, who gave his life in the struggle of this nation to help make the world safe for democracy May his be the reward of the righteous and of all who give their lives for the benefit of their fellowmen."

HERBERT CARL KASSNER.

Dr. Herbert Carl Kassner, Associate Professor of Chemistry at the College of Pharmacy of Columbia University, died on Thursday, May 17, 1934, at his home, 22 Carlton Terrace, Stewart Manor, N. Y. He had been ill with pneumonia for two weeks.

Dr. Kassner was born in Jamaica, Queens, on March 6, 1899. He received his early education in the public schools of Queens, graduating from the Jamaica High School in January 1917. In the fall of the same year he entered the College of Pharmacy of Columbia University, receiving the degree of Pharmaceutical Chemist in the spring of 1920. In the spring of 1921 he was granted the degree of Bachelor of Science in Pharmacy and awarded the Plaut Fellowship, which provided for study at a foreign university or college. Dr. Kassner elected the University of London for his graduate work and in 1924 was awarded the degree of Doctor of Philosophy by that University, offering as his dissertation in partial fulfilment of the requirements for that degree a report on the histological study of the seeds of *Ipomœa hederacea* and other species of *Ipomœa*.

Upon his return to the United States, Dr. Kassner was employed as research chemist with Messrs. E. R. Squibb and Sons. Later he was called to the Albany College of Pharmacy, serving for three years, first as Assistant Professor and then as Associate Professor in Chemistry. In July 1927 he became Associate Professor of Chemistry at the College of Pharmacy of Columbia University, in which capacity he served until his death.

Dr. Kassner was one of the scientific editors of *The American Druggist*, and a frequent contributor to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. He was a member of the AMERICAN PHARMACEUTICAL ASSOCIATION, the American Chemical Society, and a corresponding member of the British Pharmaceutical Conference. He served for several years as secretary of the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Dr. Kassner is survived by his widow, the former Elsie Woodward; his parents, Mr. and Mrs. Arno C. Kassner of Jamaica; a brother, Arno W. C. Kassner of Jamaica, and a sister, Mrs. Mildred K. Joseph of St. Albans, Queens.